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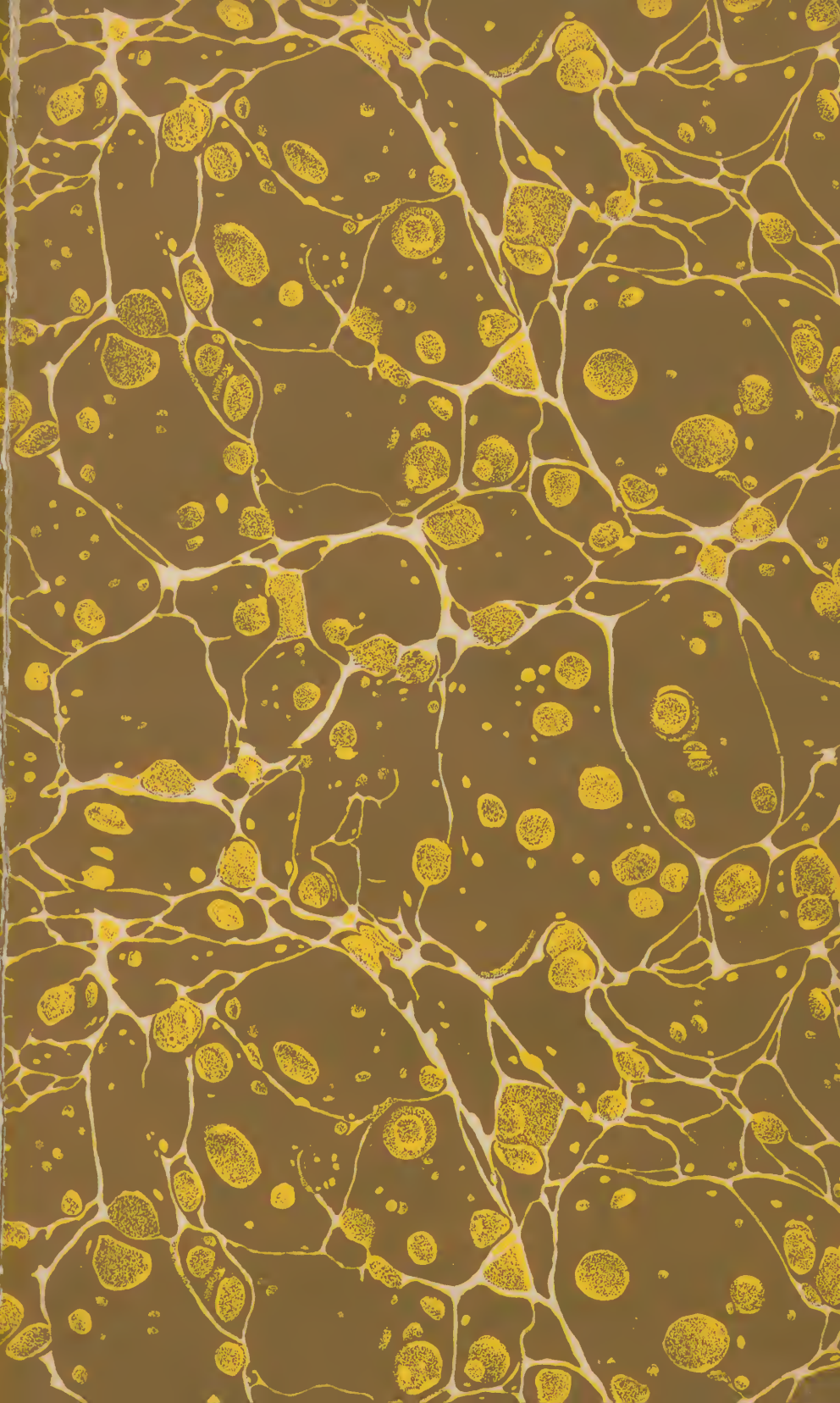
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# DEFECTS FOUND IN DRAFTED MEN

## STATISTICAL INFORMATION COMPILED FROM THE DRAFT RECORDS

SHOWING THE PHYSICAL CONDITION OF THE  
MEN REGISTERED AND EXAMINED IN PUR-  
SUANCE OF THE REQUIREMENTS OF THE  
SELECTIVE SERVICE ACT

Prepared under the direction of  
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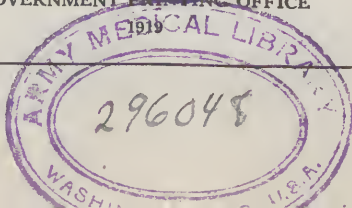
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2. Fractures, faulty union of.
3. Hand deformity; loss of one or more fingers.
4. Deformities, various locations, cause not stated.
5. Loss of upper extremity, whole or part.
6. Loss of lower extremity, whole or part.

## Plate XV:

1. Atrophy of muscles, upper or lower extremity.
2. Arthritis.
3. Ankylosis of joint, bony or fibrous.
4. Arthritis and ankylosis of joint.
5. Bullet or other recent wound.
6. Mechanical defects.

## Plate XVI:

1. Defective physical development.
2. Deficient chest measurement.
3. Underweight.
4. Underheight.
5. Developmental defects.
6. Malnutrition.

*Graphic plates showing relative frequency of certain diseases or defects and groups of diseases or defects in the different States as detected in the 1,961,693 men examined by mobilization comps and 549,099 men rejected at local boards.*

## Plate XVII. Grouping by States:

1. Diseases or defects by States.
2. Defective men, by States, accepted and rejected.
3. Rejections by States, camps, and local boards.
4. Men accepted for Groups A, B, or C despite defects arranged by States.

## Plate XVIII. Tuberculosis and goiter:

1. Pulmonary and suspected tuberculosis.
2. Total tuberculosis.
3. Goiter, exophthalmic.
4. Goiter, simple.

**Plate XIX. Disorders of metabolism and pellagra:**

1. Diabetes mellitus.
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2. Chancroid.
3. Gonococcus infection.
4. Total venereal.

**Plate XXI. Vices; apoplexy and paralytic conditions:**

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2. Neurosis.
3. Hysteria.
4. Total functional nervous disorders.

**Plate XXIII. Mental disorders:**

1. Dementia præcox.
2. Psychosis, manic depressive.
3. Psychoses, others.
4. Constitutional psychopathic states.

**Plate XXIV. Mental disorders; epilepsy:**

1. Mental deficiency.
2. Psychasthenia and psychoneurosis.
3. Total mental disorders.
4. Epilepsy.

**Plate XXV. Defects of speech and hearing:**

1. Defective speech.
2. Deaf and dumb; mute.
3. Deafness.
4. Deafness, congenital or acquired.

**Plate XXVI. Ear, nose, and throat:**

1. Otitis media; perforated ear drum.
2. Defective hearing.
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**Plate XXVII. Defective vision:**

1. Myopia.
2. Hyperopia; astigmatism and defective vision, cause not stated.
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**Plate XXVIII. Eyes and sinuses:**

1. Loss of or blindness in one or both eyes.
2. Defective vision or loss of vision.
3. Trachoma.
4. Sinusitis.

**Plate XXIX. Organic diseases of the heart:**

1. Valvular diseases of the heart and endocarditis.
2. Cardiac hypertrophy and dilatation.
3. Myocarditis and myocardial insufficiency.
4. Total organic diseases of the heart.

**Plate XXX. Blood vessels, functional heart conditions; cleft palate and harelip:**

1. Arteriosclerosis and hypertension.
2. Cardiac arrhythmias.
3. Tachycardia.
4. Cleft palate and harelip.

**Plate XXXI. Defective veins:**

1. Hemorrhoids.
2. Varicocele.
3. Varicose veins.
4. Total of hemorrhoids, varicocele, and varicose veins.

## Plate XXXII. Respiratory; genito-urinary.

1. Bronchitis.
2. Asthma.
3. Nephritis.
4. Hydrocele.

## Plate XXXIII. Inguinal rings; external genital organs:

1. Hernia.
2. Enlargement of inguinal rings.
3. Hernia and enlargement of inguinal rings.
4. External genital organs and congenital defects.

## Plate XXXIV. Curvature of spine; diseases and defects of joints:

1. Curvature of spine.
2. Arthritis.
3. Ankylosis of joint, bony and fibrous.
4. Arthritis and ankylosis of joint.

## Plate XXXV. Foot defects:

1. Hammer toe and hallux valgus.
2. Pes planus.
3. Pronated foot.
4. Pes planus and pronated foot.

## Plate XXXVI. Defects of hands and feet:

1. Foot deformity.
2. Metatarsalgia.
3. Total foot defects.
4. Hand deformity, including loss of one or more fingers.

## Plate XXXVII. Deformities, acquired:

1. Fractures, faulty union of.
2. Loss of upper extremity, whole or part.
3. Loss of lower extremity, whole or part.
4. Deformities, various locations, cause not stated.

## Plate XXXVIII. Developmental defects:

1. Defective physical development.
2. Deficient chest measurement.
3. Underweight.
4. Underheight.

## Plate XXXIX. Conditions acquired or congenital:

1. Defective or deficient teeth; dental caries.
2. Atrophy of muscles, upper or lower extremities.
3. Developmental defects combined.
4. Mechanical defects combined.

## Plate XL:

1. Bullet or other recent wound.
2. Chorea.

*Graphic plates showing for consolidated sections the incidence of diseases or defects, or combination of diseases or defects, by the sections as grouped, the upper part of the plate showing the incidence of the diseases or defects, or groups of diseases or defects, per 1,000 men examined, with the lower half of the plate showing the proportion per 1,000 of the same diseases or defects, or group of diseases or defects, to the total defects noted in the consolidated sections.*

## Figure I. Diseases or defects; inguinal rings; external genital organs—

1. Hernia and enlargement of inguinal rings.
2. Hernia.
3. Inguinal rings, enlargement of.
4. External genital organs and congenital defects.
5. Hydrocele.

## Plate XLI:

## Figure I. Tuberculosis—

1. Total tuberculosis.
2. Pulmonary and suspected tuberculosis.

## Figure II. Goiter—

1. Total goiter.
2. Simple goiter.
3. Exophthalmic goiter.



## Plate XLII:

## Figure I. Vices—

1. Total vices.
2. Total venereal diseases.
3. Gonococcus infection.
4. Syphilis.
5. Chancroid.
6. Drug addiction.
7. Alcoholism.

## Figure II. Acquired diseases—

1. Asthma.
2. Bronchitis.
3. Nephritis.
4. Pellagra.

## Plate XLIII:

## Figure I. Nervous disorders—

1. Total nervous disorders.
2. Epilepsy.
3. Apoplexy and paralytic conditions.
4. Neurasthenia, hysteria, and neurosis.
5. Chorea.

## Figure II. Mental disorders—

1. Total mental disorders.
2. Mental deficiency.
3. Psychoses, others.
4. Dementia precox.
5. Psychasthenia and psychoneurosis.
6. Constitutional psychopathic states.
7. Psychosis, manic depressive.

## Plate XLIV.:

## Figure I. Diseases and defects of eyes—

1. Total defects and diseases of the eye.
2. Astigmatism, hyperopia, myopia, and defective vision, cause not stated.
3. Loss of or blindness in one or both eyes.
4. Trachoma.
5. Amblyopia.

## Figure II. Diseases and defects of nose, throat, and ear—

1. Diseases and defects of the nose.
2. Tonsillitis, hypertrophic.
3. Otitis media and perforated ear drum.
4. Sinusitis.
5. Deviation of nasal septum and hypertrophy of turbinates.

## Plate XLV:

## Figure I. Organic and functional diseases of the heart—

1. Total organic diseases of the heart.
2. Valvular diseases of the heart and endocarditis.
3. Cardiac hypertrophy and dilatation.
4. Tachycardia.
5. Cardiac arrhythmias, murmurs not organic and functional disorders.
6. Myocarditis and myocardial insufficiency.

## Figure II. Circulatory disorders of the arteries and veins—

1. Total diseases and defects of the veins.
2. Varicose veins.
3. Varicocele.
4. Hemorrhoids.
5. Arteriosclerosis and hypertension.

## Plate XLVI:

## Figure I. Muscles and joints—

1. Ankylosis of joint.
2. Arthritis.
3. Chronic dislocation other than hand.
4. Contracture of muscle fascia, tendon, or sheath.



## PLATE XLVI—Continued.

Figure II. Defects and deformities of feet—

1. Total defects and deformities of the feet.
2. Pes planus.
3. Hallux valgus and hammer toe.
4. Pronated foot.
5. Foot deformity, cause or type not specified.
6. Metatarsalgia.

## Plate XLVII:

Figure I. Disorders of the speech and hearing—

1. Total disorders of speech and hearing.
2. Defective hearing.
3. Deaf.
4. Defective speech.
5. Deaf and dumb; mute.

Figure II. Acquired deformities—

1. Total acquired deformities.
2. Deformities various locations.
3. Hand deformities; loss of one or more fingers.
4. Fractures, faulty union.
5. Lower extremity, loss of whole or part.
6. Atrophy of muscles, upper and lower extremity.
7. Upper extremity, loss of whole or part.

## Plate XLVIII:

Figure I. Acquired and congenital conditions—

1. Defective and deficient teeth; dental caries.
2. Curvature of the spine.
3. Bullet or other recent wounds.
4. Cleft palate and harelip.
5. Diabetes mellitus.

Figure II. Defective development and nutrition—

1. Total defective development and nutrition.
2. Underweight.
3. Underheight.
4. Defective physical development.
5. Obesity.
6. Deficient chest measurement.
7. Malnutrition.

## PREFACE.

The preliminary study of the results of the physical examinations of approximately the first million drafted men sent to mobilization camps was published in Bulletin No. 11, Surgeon General's Office, March, 1919.

In this publication there is included a study of the defects or diseases found as a result of the physical examinations of this million men who were reported upon in Bulletin No. 11, and, in addition, of approximately an additional million of the remaining number of drafted men sent to mobilization camps prior to the signing of the armistice, November 11, 1918, as well as of the men who were rejected by the local boards.

The data for these three sets of men are shown separately in order that a comparison may be made of the defects detected and recorded by the various examining boards at the early period of examination, as compared with the later period, and also of the local boards as compared with the camp boards.

Unfortunately, no provision was made on the forms for recording the data of the physical examinations for recording color, nativity, age, or occupation.

It is also unfortunate that many of the diagnostic terms used by the local boards and by the camp boards were unsatisfactory. As a result, it has been necessary to include in this publication certain terms which ordinarily are not acceptable to the scientific medical profession.

In the preparation of this publication it was found desirable to revise, to a certain extent, the grouping of the diagnostic terms under the more general terms used in the statistical tables. The data for the first million men were consequently regrouped. If the figures published in this report for the first million men are compared with those published in Bulletin No. 11, some slight differences will be detected.

One point in reference to the preparation of the statistical material is especially worthy of note. For the first million only the major military defect was recorded on the statistical cards. When preparing the data for the second million men and for the men rejected by the local boards, a second defect was recorded. The machines as described in Bulletin No. 11 were used for the sorting and tabulating of the data presented herein. Additional data will be published in the course of the next few months, provided the funds available permit, relative to the physical examinations and to the discharges for disability in the camps.

Acknowledgment should again be made at this point of the hearty cooperation of the entire office of the Provost Marshal General in assisting this office to collect material for this study and for the study published in Bulletin No. 11. Thanks are especially extended to Col. James Easby-Smith, Col. Frank H. Wigmore, and Col. Frank R. Keefar. Acknowledgment is also made of the assistance rendered

by Mr. John W. Beath by his careful, earnest, and painstaking work in the preparation of the statistical tables; also to Second Lieut. Glendon H. Armstrong, Sanitary Corps, for his conscientious and painstaking work in tabulating the material for this entire study by the electric sorting and tabulating machines; and again to First Lieut. John P. Sharp, Medical Corps, for his excellent work in supervising the coding of the data for the first million men. Acknowledgment should also be made of the excellent work done by the five young ladies in the preparation of the graphs in this publication, as well as to the entire clerical force of the Medical Record Section, Surgeon General's Office, who have at all times shown their patriotism and interest by careful, conscientious, and painstaking efforts.

## INTRODUCTION.

This study involves the analysis of the defects and diseases found in about half a million men rejected by the medical examiners of local boards and of two lots of about a million each who were examined at mobilization camps during the physical examinations of the draft in 1917-18. This number constituted about four-fifths of all of the men who were physically examined, and is representative of all. The men examined were of ages 18 to 30 inclusive, but relatively a larger proportion of the male population between the ages of 21 and 30 years is included in these statistics than of those of earlier age.

The importance of a knowledge of the defects in the American population of military age is many sided. It is important from the standpoint of social and industrial life, since it gives some insight into the availability of this population for the various occupations which our social organization requires. It has social-medical bearings, since it indicates the physical and medical status of our population in different parts of the country under different sanitary conditions and with varying opportunities of medical and surgical treatment. It has important military bearings, since it indicates the proportion of men available for military service of different kinds. It has a social-therapeutic bearing, since it indicates the size and nature of the task before those who would seek to improve by better conditions the physical and mental standing of our population. Finally, it has a biological and eugenic significance in so far as it reveals the inherent failures in man to make complete adaptation to the rapidly advancing requirements of a highly artificial civilization, in so far as it throws light upon the constitutional limitations of the various races to meet the conditions imposed by that civilization, and in so far as it throws light on the influence of military selection on the breeding stock of the next generation.

The opportunity for securing this knowledge was a unique one. The Great War made necessary the mobilization of men of military age under 30 years and it was early recognized that a careful selection was essential of those physically and mentally fit for the severe service that they would be called upon to perform. Consequently, thousands of medical officers were secured for the purpose of such examination. It was done in thousands of local boards and scores of camps for a period of approximately one year. Each man was examined by at least one, and usually by a number of physicians. In the case of the men who were sent to the mobilization camps usually each was examined by from 4 to 12 medical officers. These physicians each rendered an independent verdict upon the man's physical or mental condition. In case a significant blemish was found the diagnosis of the defect was recorded upon the physical examination form carried by the recruit. The records thus made were sent to the office of the Surgeon General of the Army, copied upon statistical cards, counted, and tabulated, and they form the basis of the present study.



TABLE 1a.—(1) Number of men rejected by local boards, by States; (2) number of men included in the tabulation in this office of the first million men sent to mobilization camps, by States; and (3) the same data for the tabulation of approximately the second million men sent to mobilization camps, by States.

State.	Class Vg (rejected by local boards).	Examined first million. (Sent to mo- bilization camps).	Examined second million. (Sent to mo- bilization camps).
Alabama.....	7,776	16,291	22,604
Alaska.....	307	106	658
Arizona.....	1,432	3,894	2,137
Arkansas.....	6,531	10,287	20,478
California.....	20,823	35,839	19,184
Colorado.....	5,387	6,774	8,658
Connecticut.....	8,599	13,653	9,982
Delaware.....	886	1,909	1,852
District of Columbia.....	1,845	4,504	4,580
Florida.....	4,501	5,982	12,038
Georgia.....	11,810	20,936	24,897
Idaho.....	2,046	4,078	5,480
Illinois.....	36,095	70,459	55,969
Indiana.....	13,828	23,444	25,622
Iowa.....	13,839	20,584	27,319
Kansas.....	5,147	9,970	19,124
Kentucky.....	14,660	15,875	21,657
Louisiana.....	11,642	12,752	19,885
Maine.....	6,751	3,344	7,666
Maryland.....	10,705	9,897	12,692
Massachusetts.....	23,432	30,181	29,476
Michigan.....	19,916	42,212	29,300
Minnesota.....	13,274	27,560	23,963
Mississippi.....	6,629	8,827	17,379
Missouri.....	17,557	25,172	34,244
Montana.....	3,917	11,780	9,887
Nebraska.....	3,995	10,930	11,237
Nevada.....	596	1,443	971
New Hampshire.....	1,743	2,288	3,678
New Jersey.....	14,717	30,531	23,177
New Mexico.....	2,509	2,838	3,426
New York.....	59,988	89,339	83,850
North Carolina.....	10,819	15,170	23,361
North Dakota.....	3,099	6,621	6,170
Ohio.....	27,347	53,817	46,882
Oklahoma.....	10,947	19,864	24,673
Oregon.....	3,251	3,900	7,948
Pennsylvania.....	39,265	78,706	67,931
Rhode Island.....	5,633	3,958	4,535
South Carolina.....	7,049	10,025	18,002
South Dakota.....	4,058	4,013	9,359
Tennessee.....	14,960	14,691	22,607
Texas.....	22,590	35,852	45,496
Utah.....	2,516	4,652	3,663
Vermont.....	2,873	2,079	2,916
Virginia.....	11,967	18,600	22,119
Washington.....	9,161	13,523	10,369
West Virginia.....	6,123	12,613	17,714
Wisconsin.....	12,867	18,610	24,356
Wyoming.....	774	1,932	3,552
State not specified.....	917	101,901	12,765
Total United States.....	549,099	994,206	967,486
Porto Rico.....			4,854
Philippine Islands.....			151
Hawaii.....	861		1,327
Panama.....			31
Total.....	549,960	994,206	973,849

## TOTAL DEFECTS FOUND.

Of the hypothetical number of 2,753,922 men who were examined to furnish the statistics discussed, there were found 468 defective men per thousand men examined. That is to say, over half of the men were found to be without any physical or mental blemish significant enough to record. In the case of some of the men two or more



defects were noted, so that in the total there are 557 defects noted per thousand men. The number would have been somewhat larger except from the fact that in taking off from the form the records for the first million men only the major defect was utilized in the present statistics. The number 557 is important because it represents the sum of all of the ratios per thousand for the 269 defects and defect groups in to which the defects found were classified.

In this introduction, as in the body of the text, the unit of discussion is considering the rate of incidence of particular defects in 1,000 men. The number "1," therefore, when given as the rate for a defect means that one man out of 1,000 was found with a defect. Since the assumed total of the men is about 2,754 "1" means that there were 2,754 men found with a given defect. The rate "2" means that there was twice this number; that is, about 3,500, etc. In this introduction rates will usually be given as integral numbers except in the case of small rates.

It is proposed now to consider in turn, first, the relative frequency of the main groups of defects found; secondly, the classification of men in relation to military service on the basis of these defects; and, thirdly, these defects in relation to their geographical, occupational, and racial significance.

Of the defects found, those of a mechanical sort, involving bones and joints and the appendages of the hands and feet, were commonest and constituted about 39 per cent of all. Second place is taken by defects of the sense organs, about 12 per cent; next come the two great and nearly equal size disease groups of tuberculosis and venereal, constituting together 11 per cent; then follow the cardiovascular diseases and defects, about 10 per cent, and those that fall into the group of defects of developmental and metabolic processes, also about 10 per cent. Of minor importance are the groups of nervous and mental troubles, about 6 per cent; diseases of the nose and throat, about 5 per cent; those of the skin and teeth, about 3 per cent; those of the respiratory organs (other than tuberculosis), 1 per cent, and "others" about 3 per cent. Thus, we see that the defects of the mechanical group are far and away the most frequently found in men of military age, and they constitute the most important group from the military point of view. The group of mechanical defects<sup>1</sup> may be first considered because of its primary importance. About two-fifths of all defects, as we have seen, belong to this category, or 218 out of every 1,000 men examined showed an important defect belonging to this group.

Numerically, the most important item in this group, and indeed, in the whole list of defects found in young men, is that of weak feet, including various forms. Of these there were over 300,000 cases noted, constituting more than half of the group of mechanical defects and giving a rate of 124. That is, one-eighth of the men examined had weak feet. Over 50 per 1,000 had deformed or injured appendages, and 40 per 1,000 were found with hernia.

Of the group of defects of the sense organs about half were refractive error of the eye, one-quarter due to other defects and diseases of the eye and another quarter were defects and diseases of the ear, including deafness.

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<sup>1</sup> For complete list of the separate items included in this group, see page 147.

Tuberculosis gave a rate of 30 and constituted 5.4 per cent of the defects found. Venereal disease gave a rate of 32 and accounted for nearly 5.8 per cent of all the defects.

Of the developmental and metabolic defects the more important are: Weight below the standard requirement for military service; underheight; curvature of the spine; goiter (both simple and exophthalmic); defective chest measurement; imperfect development of the genitalia and of the palate and upper lip. There were 73,000 men found to be below military requirements of weight, and this group constituted about 5 per cent of the defects found. Of the nervous and mental defects, mental deficiency was the most important, being noted in nearly 40,000 men, but many more than this were detected by subsequent psychological examination. Of diseases of the nose and throat, the most important was hypertrophis tonsillitis, recorded in 64,000 cases. Finally, of defects of the skin and teeth, defective and deficient teeth was the most important group, including 37,000 men.

This summary of the various groups of defects found in the American population must not pass without a word of warning. It is true that nearly half of the men examined showed a defect considered worthy of notation. It may be regarded as surprising that not more defects were detected. Probably they would have been had the examination been less expeditiously conducted. Many of the defects are obviously noteworthy only from a military standpoint. From the point of view of society it is no defect that a South Italian is under 60 inches tall, yet this constituted a defect from a military point of view. Also, many of the defects noted, like most of those of venereal disease, were not regarded as rendering a man unfit for military service. A large proportion of the mechanical defects, important as they are in a man who is to be used as a part of a fighting machine, are no serious handicap in civil life. Also, many of the defects of sense organs found are easily capable of correction so as to fit a man to perform his duties in civil life. Altogether, it is clear that fully half of the defects found are not of such a nature as to interfere seriously with the man performing services of the highest order in civil life.

From the standpoint of the Army, as stated, the defects found are not equally important. Recognition of this fact led to the establishment of five categories by draft and military officials. There was first the so-called Class Vg, the class of men rejected on account of physical defects from any military service. These men were not sent to camp. The men received at camp were placed in one of four groups denominated, respectively, A, B, C, and D. A includes men who were accepted for general military service. It comprised two groups, namely, those in whom no defect was found and those in whom some minor defect not interfering with full military duty was found. Group B became operative only during the latter part of the draft period and included registrants with a defect that would permit of general military service after the registrant had become cured of the defect. Group C included registrants with such defects as would permit them to function only in special or limited military service in a named occupation or capacity, and, finally, Group D, which included men rejected on physical grounds from any military



service. The relation of certain major defects to classification is shown graphically in figure 1. In this figure each bar indicates 100 per cent. The length of the solid black portion to the right indicates the proportion of persons with a defect who were rejected by local boards. The portion of the bar that is one-third white indicates the percentage that was rejected at camps. The other areas of the bars from right to left indicate classification in Group C (occasionally in Group B) and Group A.

It appears at a glance that nervous and mental defects, including epilepsy, mental deficiency, paralysis, psychasthenia, constitutional psychopathic states, and neurasthenia were among the defects found which led to the largest proportion of rejections. These are the defects which are incurable and which were incompatible with the strain of military training and active service. It doubtless would have been well had none of these been accepted for general military service. It is noteworthy that certain of these conditions, like psychasthenia, constitutional psychopathic state, and neurasthenia were especially difficult to detect by local boards and were therefore an exceptionally common cause for rejection at mobilization camps. Hysteria is another one of this group of diseases which was detected in greater frequency at camps than by local boards. On the other hand, the figure shows that relatively few men were rejected for enlarged inguinal rings, for hypertrophied tonsils, for venereal disease, and even for flat foot. For hemorrhoids, loss of fingers, hernia, about half were rejected and half accepted for general or special military service. Among the other defects which led to nearly complete rejection were otitis media, valvular disease of the heart, asthma, paralysis, and, above all, tuberculosis.

There will now be passed rapidly in review the principal results secured concerning each of the principal defects and diseases in relation to geographic distribution, occupation, and race of the defective men. Our information on this subject has been distributed in the different tables by States, by sections, and by consolidated sections. A word may be said at this point about the sections. It was early recognized that most of the larger States could, with advantage, be divided into one or more sections, depending upon geographical, occupational, or racial conditions. A list of such sections is given on page —, and a map of the United States showing the location of these sections is given on page —. Some of the sections were, for the purpose of further study, grouped or consolidated so as to unite similar sections. The results of this consolidation are given in Table XXXV.

1. *Tuberculosis*.—The facts concerning the distribution of this widespread and frequently fatal disease is shown in Plate II, figure 1. It appears at once that the region of highest incidence of this disease is in the desert States of Arizona and New Mexico and the adjacent States of Colorado and California. The reason for this is that the area includes so many young men who have gone there because they were already victims of active tuberculosis. Perhaps some of the tubercular men are sons of persons who had migrated to these States on account of tuberculosis, and the registrants have the family diathesis. The next most important States are the two northernmost Pacific States, the New England States and New York and a group of States immediately south of the Mason-Dixon line, including also Missouri and the States of Louisiana, Mississippi, and Georgia. New

England has long been known as a region with a high rate for tuberculosis, a disease whose fires are fed by the large number of recent immigrants. The smallest amount of tuberculosis is found in the Great Plains region and northern part of the Rocky Mountain Range in the area occupied largely by non-British stock, an exceptionally vigorous people. The high rate in certain southern States may be due to the presence in them of susceptible negroes as this race, and particularly the mulatto, is especially susceptible. In general, the agricultural areas of the North show less tuberculosis than the urban regions. Also the large amount of tuberculosis in the rural southern States tends to overweigh the rate of tuberculosis in the rural population of the country taken as a whole.

2. *Venereal diseases*.—These diseases have a social interest which far exceeds the military interest. Their numbers give a rough index to the success with which the different States met in their efforts to inculcate the sex more and the capacity that the populations of the different sections have in inhibiting the sex instincts. The details of distribution of these diseases in different parts of the country repay careful study. This group includes syphilis, chancroid, and gonococcus infection which together give a rate of 32. This rate of 5.6 per cent for all forms of venereal disease together, as shown in the second million men, must be taken as the most precise information we have concerning the proportion of men in the United States, ages 18 to 30, who show symptoms of venereal disease at a given time. There is no justification for the exaggerated statements made by propagandists of the presence of 10 per cent or more men affected in the United States. No "conservative estimate" can possibly replace, or add anything to, the results of the exhaustive individual examination of nearly a million men which has led to the figure just quoted. It is to be remembered, moreover, that this rate includes a colored population, as well as the white, and it seems probable from the rate of admission to sick report in the Army that colored men are several times as apt to be infected as white men.

The distribution of total venereal diseases for the second million men examined at camp (and practically all cases of venereal cases come to camp) is shown in Plate III, figure 4. One sees at a glance that just those States with the largest proportion of colored population show the largest ratio of venereal disease. Adjacent regions with an intermediate proportion of colored population show an intermediate amount. Relatively little was found in the New England States, including New York and over the northern States west of the Mississippi River. Wisconsin and the Dakotas, inhabited largely by immigrants from northern Europe, especially the Scandinavians, show the lowest rate for these diseases. If the rural rate is a shade higher than the urban rate it is because the negroes of the South unduly swell the rural proportion of infected men. In the northern States, like Maine, Massachusetts, New Jersey, and Ohio, the rural rate is less than the urban. On the other hand, the venereal disease rate for the eastern manufacturing cities and especially for the commuter sections, is less than that for the northern agricultural districts, but as a whole they are not superior to those agricultural regions which contain a large proportion of recent immigrants.

3. *Goiter*.—Goiter was formerly regarded as rather rare in America; it is thought of as a defect which belongs to mountainous



regions of Europe. One of the surprises of the draft examination is that from among young men (a sex relatively little affected by goiter) goiter should be found in over 20,000 cases, giving a rate of three-fourths of 1 per cent of the population examined. Not less surprising is the geographic distribution of simple goiter and of exophthalmic goiter. It seems that goiter is a disease preeminently of the Great Lakes Basin and of the extreme Northwest. Goiter is almost absent throughout the Southern States from the Cape Fear River to the Colorado. This clean-cut distribution of goiter should help in the solution of the question of its etiology. The area of its greatest incidence in the Great Lakes region nearly coincides with that of the hard waters of the Niagara limestone. But in Oregon and Washington, where the incidence of goiter reaches a maximum, the waters are soft. On the other hand, the water of the cities of the Northwest comes largely from the mountains of the Cascade Ranges and Rockies, and mountainous regions are those of the highest incidence of goiter in the European countries. On the other hand, the Great Lakes region is without important mountains. Consequently the presence of lime in the water or the mountain origin of drinking water can neither of them be considered sufficient causes of goiter. It is believed that the distribution of goiter by occupations is controlled by its geographic distribution. It is not because the men of Washington are largely lumbermen that they have goiter, but because they live in the State of Washington. On the other hand, it is not clear that race has no significance in the occurrence of goiter. Not all persons who live in a goiterous region are affected with goiter, and it is possible there is a selection based on race of those who show the symptoms. There is an excess of goiter among the Scandinavians, and the rate is higher still among the Finns, though it must be recognized that their sections are both in northern Michigan, a center of goiter.

4. *Curvature of the spine.*—Though it can not be denied that there are hereditary factors which favor development of spinal curvature, yet it must be admitted that a large proportion of the cases are developed under conditions of bad posture, whether induced by conditions from without the individual or from within. However it is induced, the amount of it found was surprisingly large. It occurred on the average of five and one-half times in every thousand men examined.

The map on plate 11, figure 6, shows the distribution of curvature of the spine by States. It appears that the States of New England and the densely populated States about the Great Lakes are those with a higher incidence. The States of the Great Plains and the Gulf States show relatively little of it. As for the latter, the low rate in the Gulf States is largely due to the Negro population, one which is relatively little affected with curvature of the spine. In general, the great agricultural regions are little affected, whereas the eastern manufacturing sections have more of it. It probably has a racial factor in its occurrence, as it showed a minimum rate in the sparsely settled sections along the Mexican border which contain a good many "Mexicans." Its rate reaches a maximum of 7 among the French Canadians.

5. *Defective physical development and deficient chest measurement.*—These are terms which include a large range of conditions



due to a variety of causes. The group is of great significance from a military standpoint, but its numbers were not very large, only about 3,000, or an average of three and one-half times the number of men per thousand examined. The group has a great importance for social therapeutics, since it is largely due to unhygienic methods of living, although in considerable part due, also, to congenital defects. The distribution of these defects is shown in Plate XVI, figures 1 and 2. A center for defective physical development is found in the States which center around Chattanooga, and it seems probable that this area is largely determined by the presence of hookworm infection. There is another center in New England, and this seems to be controlled very largely by the French-Canadian immigrants, who show a high rate of defective physical development. There is a slight excess of defective physical development (but not of deficient chest measurement) in rural districts. This may be due in part to the high rate among the agricultural Negroes of the South and among the agricultural whites of the South who were affected with hookworm. In the Northern States which contain large cities, there is a relatively low urban rate for defective physical development, which may be due to an avoidance of this vague term by urban medical examiners. There is a relatively low rural rate for deficient chest measurement in such States. No doubt the more varied muscular activities of the children of rural districts of the North is responsible for the lower rate for deficient chest measurement in rural districts in these States.

6. *Underweight*.—The physical examination standards prescribed a minimum weight of 114 (or possibly 110) pounds. Many other registrants were, however, rejected who weighed far more than the lower limit, provided their weight was insufficient for their height. Underweight, therefore, included two groups, those who were racially small and those who suffered from malnutrition. The malnutrition was, of course, chiefly the result of parasitism, altogether there were noted 73,000 men who were underweight, giving a rate of 27. The map showing the distribution of underweight in the different States is given in Plate XVI, figure 3. Here we see one center in New England, largely due to the recent immigration of small races, like the South Italians, Portuguese, and Polish Jews. A second center in the Southeast is chiefly due to hookworm and to malaria. The underweight that characterizes the State of California may be due in part to the constitutional factor of small races (like the Japanese), and chiefly to tuberculosis. Underweight is prevailingly an urban defect primarily because the great northern cities, which tend to control the result, are those to which the small races of South Italians and Polish Jews have largely migrated.

7. *Underheight*.—Stature is determined primarily by racial constitution. Thus, the Scotch are the tallest people on the globe and the South Italians and the Polish Jews are the shortest peoples of Europe. Stature seems to be practically independent of environmental conditions and, if it is much commoner in cities than the country, it is not due chiefly to repressing environmental conditions in urban districts, but to the fact that the short races prefer to live in cities, while the tall Scandinavians and Scotch are largely rural dwellers. The total amount of underheight was not so great as of

underweight—about 8,000, giving a rate of 3. This is largely because the minimum requirement for military service was, during most of the period of draft retained at 60 inches, a stature a little less than the average stature for males of the short races which have made their home in this country. The distribution of underheight is given on Plate XVI, figure 4. One sees at a glance that the New England and Middle States, the States which have received the greater part of the new migration, show the largest proportion of persons underheight. There is also a good deal of it on the Pacific coast, which may possibly be due in part to the influence of orientals. Relatively little underheight was found in the agricultural districts, especially in the South. There was much more of it in the eastern manufacturing and the commuter groups, because of the presence of short races in them. There was less than a rate of 2 in the Scandinavian sections, but a rate of over 8 in the French-Canadian sections. The condition, while not serious, is also one that can not be altered by any prophylactic measures. Its numbers in the future can only be kept down by restricting migration of immigrants belonging to short races.

8. *Imperfect sex development.*—Of the defects of this group about 8,000 cases were noted, constituting a rate of 3. The defects of this group, congenital in their nature, can not be altered by any prophylaxis and, though remedied by surgical operations, recur in subsequent generations by inheritance. The distribution of these defects is shown on Plate XII, figure 6. This yields the striking result that the defect predominates in the northern one or two tiers of States west of the Mississippi River from Minnesota to the State of Washington. There is also another center of incidence in southern New England. The latter is no doubt due to the presence of French Canadians, who have a high rate for cryptorchidism of over 3. The States of the Northwest contain a considerable Scandinavian population. Although native stock predominates in Washington and Idaho, it is noteworthy that the Scandinavian group of sections No. 20 shows a high rate, over 3, for cryptorchidism.

9. *Deformed, atrophied, or lost arms.*—Serious defects in the arms were found in probably 15,000 cases, if we assign half of the cases of ankylosis to the upper extremity. The loss or deformation of the arms is not only of great military importance, but also of civil importance, since it limits a man's activity in industrial life, most of the operations of manufacturing and of commerce requiring the use of two arms. Such a defect is entirely prohibitive of active military service. The distribution of loss of upper extremity, by States, is shown in Plate XIV, figure 5. To this should be added a certain quota from Plate XIV, figure 4, "deformities, various locations, cause not stated," and also of Plate XIV, figure 2, "faulty union of fractures." It is seen that loss of upper extremity is common in the States bordering on the Allegheny Mountains from Pennsylvania to Georgia. It is also found in excessive numbers in the Gulf States from Mississippi westward. The State of Michigan is also characterized by a large amount of loss of upper extremity. The loss of the upper extremity is determined largely by the hazard of occupation. Probably an important reason for loss of upper extremity along the Allegheny Mountains and in the western Gulf States is



the extensive lumbering operations going on in those States, or which have gone on in them during the last 10 or 15 years. Similarly with the State of Washington, which is now the principal lumbering State of the Union, sawmills, planing mills, box factories, all offer special hazards to the appendages. Also in rural communities the opportunity for proper setting of broken bones is much less than in cities. Consequently, we find faulty union of fractures of the upper extremities commoner in rural States. Thus, loss of upper extremity, deformity of upper extremity, ankylosis of joints, are all much commoner in rural than in urban districts. However, the hazard of cotton mills of the South, in which there has possibly been in the past imperfect protection of workmen, is no doubt responsible for a considerable amount of urban loss of arms which is found in the southern cotton-mill States.

10. *Deformity, atrophied, or lost legs.*—This defect is 50 per cent more common than the preceding defect, showing that the legs are more subjected to hazards than the arms. A map showing the distribution of loss of lower extremity, whole or in part, is given on Plate XIV, figure 6. To this should be added certain portions of figures 2 and 4, not distributed by the nature of appendage. In figure 6, as in figure 5, we have a large incidence of loss of lower extremity in the State of Washington. Also in the mining States grouped around the head of the Ohio River, and also Virginia. There is more than the average of this defect found in the States from Louisiana northwest to Colorado, while the mining States of Montana, Idaho, and Wyoming have relatively few cases. It seems probable that the high incidence of loss of extremity in the different States is determined in part by the lumbering operations and in part by mining. At any rate, that defect is found more predominantly in the rural regions than is loss of the upper extremity. This is probably because there is little danger to loss of the lower extremity as compared with the upper extremity from cotton mills and other mills; while the hazard to the lower limbs in ordinarily agricultural pursuits is equally great to both pairs of appendages.

11. *Weak and deformed feet.*—As already stated, this is far and away the most important defect numerically and from the standpoint of military service found in the drafted men. It has also considerable economic importance in civil life, since it handicaps a man from performing duties which require standing on the feet, the very conditions which have largely induced it in the first place. It is to a great degree dependent upon the wearing of ill-fitting shoes, and hence may be combated in the future by propaganda directed toward a reform in the shape of shoes. From the biological standpoint, the important breakdown of the feet in the comparatively young male population indicates that the feet are badly adjusted to the demands made upon them in modern civilized life.

The geographic distribution of flat foot (which controlled in this group of defects) is shown in Plate XIII, figure 4. Other types of weak feet or deformed feet are shown in other parts of the plate. The one striking fact in the geographical distribution is comparative freedom from foot defects in the Southern States. This is probably due to the relative absence of shoes and also to the large colored population, which, partly because of freedom from shoes in childhood, partly because of anatomical and physiological peculiarities, is less affected with weak feet than whites. The great center of flat

foot is in the Northwest, probably partly on account of the large-body size of the immigrants into that territory, for flat foot, among other things, is influenced by the weight of the body which has to be supported. Flat foot is also common in the densely populated States of the Northeast. This is due to the presence in those States of large cities, for flat foot is, above all, a defect of the cities, due to the conditions of life, necessitating standing on the feet, walking on hard pavements, and performing less varied occupations met with in the cities as compared with the country, and especially the more constant use of shoes early in life, with the use of improperly designed and fitting shoes at all times of life. The racial differences in respect to flat foot are not striking. It is especially common among the larger races like the Germans, Austrians, and Scandinavians.

12. *Deformity of hand or loss of fingers.*—Although less important from a military point of view than weak or deformed feet, deformed or absent hand or fingers, is of great importance in social life particularly in the various industries. There were over 20,000 cases of this defect recorded, which means that nearly eight out of every thousand men were defective in this respect.

The geographic distribution of hand deformities and defects is shown in Plate IV, figure 3. There are three principal regions of principal incidence. One, the New England States; two, the group around the Great Lakes; and third, the group in the Northwest. As the defect is much commoner in rural than urban districts, States with great cities, like New York, New Jersey, Pennsylvania, and Illinois, fall below the upper third of States arranged in order of incidence. This defect is associated in part with the lumbering industry and its associated sawmills. This is no doubt why the rate reaches a maximum in the State of Washington and why it is very high in the States of Maine, Michigan, and Wisconsin. Also, it is quite clear that mining operations are contributory, and hence we find a relatively high rate in the States of Montana, Idaho, Wyoming, West Virginia, Ohio, and Michigan. The rate in Pennsylvania is kept low by the presence of large cities. The region of the great Southwest, with its treeless plains and deserts, is comparatively devoid of injury to or deformation of hands. Foot defect rate is high among the Finns, but that is largely because they are engaged in mining. It is relatively low in the agricultural sections, particularly those made up of native stock.

13. *Hernia.*—The inability of the lower abdominal muscles and fascia to withstand extraordinary strain is an indication of man's imperfect adaptation to the erect position and to the demands made upon him by the severe strains of modern civilization. The presence of threatened or frank hernia was one of the greatest defects found in men of military age. It was detected in nearly 40 per thousand, or 4 per cent of them, a total of over 100,000 individuals. The distribution of hernia and enlarged inguinal rings over the United States is shown in Plate XII, figure 3, and the distribution by States is given in detail in table 64. One of the striking results of this table is the great uniformity in distribution of hernia in the different States. The range is small between the maximum of 29 in Florida and the minimum of 13 in Maryland. Consequently the variations in percentage incidence as shown in the map are apt to be influenced by such incidental matters as idiosyncrasies of examiners at the various



camp. Taking the chart as it stands, however, it appears that there is a high rate of hernia in the Rocky Mountain States, Great Basin, and Pacific slope. These were all examined at Camp Lewis. On the other hand, these are largely mining States, where there is reason to suspect that the men of military age have been subjected to an unusual amount of heavy work. Similarly, we find that the rate is high in Pennsylvania and West Virginia, mining States; in most of the New England States, Michigan, and Wisconsin. Among the different races considered in the racial series of the consolidated sections we find the highest rate among the French Canadians, Germans, and Austrians and the lowest rate among the natives of Scotch origin.

14. *Refractive errors of the eyes.*—This group of defects is numerically important, being found in over 30 per 1,000 of the population, a total of about 90,000 men. This defect is of great military importance and led to a rejection in more than three-fourths of the cases. It is of less importance in civil life, since most of the errors are sufficiently correctable to permit of the carrying on of ordinary civil industries. Of the various defects myopia, or shortsightedness, is the commonest. The distribution of myopia and errors of refraction in general are shown on Plate X in figures 1 and 3. From these figures it appears that the center of heaviest incidence of errors of refraction is in the New England and Middle States. This may be in part due to the great care taken by the medical examiners of New England to record eye defects. It is, however, certainly very largely due to the presence in New York City and vicinity and in Boston of peoples with constitutional tendency to myopia. A similar tendency, but less marked, is found in Chicago and in the cities of Ohio and Michigan. Refractive errors are above all a defect of great cities, due both to the racial constitution of the population of these cities and to the overstrain of the eyes which comes from clerical and other close work engaged in by a large proportion of such cities. There seems to be a marked racial difference in incidence of refractive errors since the French Canadian sections have much more of it than any other. The rate is, however, high in the German-Austrian group, No. 22.

15. *Other eye diseases and defects, including blindness in one or both eyes.*—While naturally only a few persons blind in both eyes registered for military service, the number of those blind in one eye was extraordinarily large. There were about 20,000 of them altogether. The distribution is given in Plate X, figure 5, which shows that the center of distribution is in the Southern States. This result is probably due to a combination of causes, such as gonorrhea (which finds its greatest incidence here and which may blind one eye without affecting the other), and trachoma, which finds its greatest incidence in the Southern States. The extraordinarily large amount of eye defects other than errors of refraction in the arid States of the West may well be due in part to the inflammations caused by blazing sun and by dust storms.

16. *Ear diseases and defects.*—Defects of hearing, like all defects of the senses, have a great military importance. In the present war keen hearing was often a matter of life and death since, if hearing were adequate, gas shells could be distinguished from others in time to put on gas masks. Defects of hearing have, however, less importance in civil life. The number of persons with ear de-

fects and ear diseases found in the population was great. There were about 22,000 with otitis media or inflammation of middle ear; and about 20,000 others with defective hearing. The inflammation of the middle ear is a serious matter since it not only frequently leads to deafness, but becomes a center of infection which may cause death. It was a prominent cause of rejection, about 75 per cent of those with otitis media being rejected for all military service. The distribution of otitis media is shown in Plate IX, figure 6. There are two principal centers, one in the New England and Middle States and one on the Pacific coast. The point of greatest incidence is New York City, but other centers of recent immigrants in Rhode Island, New Jersey, and Massachusetts have a great amount of infection of the middle ear. There is a relatively small amount of otitis media in the Southern States which is associated with a comparative immunity from this disease of the Negro race. From the distribution of defective hearing, as shown in Plate IX, figure 4, one sees that it reaches a maximum in New England States. There is, however, a strikingly large amount of it in the States west of the Rocky Mountain and relatively little of it in the Southern States, excepting Louisiana. This exception may perhaps be due to the fact that the French seem to be especially liable to defects of hearing.

17. *Cardio-vascular defects.*—The statistics on cardio-vascular defects in the drafted men are not altogether satisfactory on account of the difficulty in detecting such defects under the conditions offered during examinations at mobilization camps. There were, however, plenty of defectives found, about  $5\frac{1}{2}$  per cent of the men examined having noteworthy defects of the valves or blood vessels. This is about 10 per cent of all the defects found. Of valvular diseases alone over 88,000 cases were recorded, and of weak veins about 20,000 cases. Valvular diseases are of great importance from a military standpoint and only about 7 per cent of them were accepted for general military service. Of persons with varicose veins about 25 per cent were considered suitable for such service. The distribution throughout the United States of cases of organic diseases of the heart is illustrated in Plate V, figure 4. Two great centers appear, one in the Northeastern section of the country and the other along the Pacific coast. Where the disease rate is high in the Southern States, it is probably to be ascribed to the Negro population and, to some extent, to infection with venereal disease. Part of the high rate on the Pacific coast is to be ascribed to the idiosyncrasies of the examiners at Camp Lewis who recorded as defectives an undue proportion of men with slight heart murmurs.

The distribution of varicose veins is shown in Plate IV, figure 4. On the whole, this condition is much more common in the Northern States than in the Southern States and especially in the zone extending from Lake Michigan to the Pacific coast. This is a region of large men belonging to tall races and it is known that these suffer more from varicose veins than do shorter men.

18. *Throat and nose.*—This highly vulnerable region of the body was found diseased in 65,000 men, few of whom were, however, rejected on this account. The principal trouble was hypertrophied tonsils. The distribution of this condition is shown in Plate VI, figure 3. The condition is sometimes ascribed to severe climatic



conditions, sometimes to overheated housing, again to mechanical irritations, like the dust of great cities or the desert, and at other times to syphilitic infection. The significance in variations in incidence of tonsillitis in the United States is not clear. It is slightly commoner in cities than in rural districts. The variations perhaps depend, in part, upon the idiosyncrasies of the examiners at the different camps.

19. *Respiratory defects (nontubercular), especially bronchitis and asthma.*—Of nontubercular respiratory defects there were recorded over 10,000 cases, chiefly asthma. Asthma was found especially in the Northern States. The distribution of asthma is shown in Plate II, figure 6. As it will be seen, its distribution is highly irregular. The entire New England States are involved and the Pacific coast is one of high incidence of the disease. It is rather common in the black belt of the South. The French-Canadian sections show it more than others, but beyond this there is little evidence that any race is especially susceptible to or immune from it.

20. *Nervous and mental defects.*—To this great group there was assigned about 6 per cent of the defects found, giving a rate of 33. The two commonest types were epilepsy and mental deficiency. There were over 14,000 cases of epilepsy recorded, giving a rate of over 5. The disease is especially prevalent in rural districts, probably in consequence of the greater amount of inbreeding there. The distribution of epilepsy by States is shown in Plate VIII, figure 6. It appears at a glance that it is commoner in the older settled parts of the country—New England, New York, Virginia, and North Carolina, also Louisiana. The Northwest is relatively free from it and this is no doubt due to the migration of persons without defect to the West and to the out-marrying which has occurred there. The disease is especially common in the districts where there are many French Canadians. It is probably widespread among the French as a race, which may account for the high rate found in Louisiana.

Mental deficiency was recorded in about 40,000 cases, giving a rate of 14. This does not give a complete picture of the amount of mental deficiency in any man of military age because still additional cases were later discovered by the methods of psychological examination. Mental deficiency, like epilepsy, is especially common in rural districts. A map of its distribution is given in Plate VI, figure 6, which shows that it is especially common in the older settled parts of the country and more in the Southern States than in the Northern. This excess in the South is, of course, largely due to the Negro race. The comparative absence of mental deficiency in the West is no doubt due to the fact that few mentally undeveloped persons have migrated there. The commuter group contains the lowest rate among the occupational groups, while the mountain whites comprise the highest. One of the surprising results of the draft examination is the large amount of mental deficiency and backwardness along the southern Allegheny Mountains.

21. *Teeth.*—Defective teeth were noted in 37,000 men. It is clear that only the grosser defects were recorded. The recorded defects were indeed so gross as to lead to rejection in about 70 per cent of the cases. It is clear that the requirements for Army life are higher than those for civil life. The distribution of defective and deficient teeth are shown in Plate VI, figure 5. The one great center for defective

teeth is in the extreme Northeast, including the New England States, New York, and New Jersey. A secondary center is in the Northwest, including the States next to the Canadian border and those on the Pacific slope. Comparative freedom from defective teeth is found in the prairie States and those of the Southwest. Defective and deficient teeth are much commoner in cities than in rural districts, despite the better provisions for their care. This may be in part due to conditions, but it is more probably largely racial. There is a large amount of defective teeth among the colored people (despite a high natural resistance to dental caries among full-blooded Negroes), and there is probably a racial lack of resistance in the old English stock which settled New England. On the other hand, the sections largely occupied by Indians and Mexicans show an exceptionally low rate of defective teeth, while those sections occupied by French Canadians show the highest rate.

#### COMPARISON OF INCIDENCE OF TOTAL DEFECTS IN THE VARIOUS STATES.

The distribution of total diseases and defects in the different States is shown in Plate I, figure 3. Also detailed ratios are set forth in Table 1. There are two great centers of defect—one is in the northeastern part of the United States and another in the western half, including especially the States on the Pacific slope and the two mountain States of Wyoming and Colorado. Of all States, Rhode Island leads with a defect rate of 802. This high defect rate, like that of the other New England States, is largely controlled by flat feet and hernia. In the case of Rhode Island, moreover, many minor defects find here their maximum ratio, or not far from the maximum. Conditions in which Rhode Island stands first or second are: Alcoholism, obesity, neurosis, total for myopia and defective vision (cause not stated), hemorrhoids, bronchitis, deformities of appendages and trunk, atrophy of muscles of the appendages, underheight, and underweight. The reason why Rhode Island stands at or near the top in many defects is largely because of the defective or nonresistant stock which has been drawn to this the most urban of all the States—that in which the population is most generally engaged in manufacturing. While one may not ascribe the defects to the occupation, it is probable that the occupation has attracted stock with defects or susceptible to them.

Next to Rhode Island stands Vermont with a defect rate of 764. It is surprising in what a number of defects the small State of Vermont leads. The reason for this is probably because of the presence in Vermont of a large number of French Canadians in whom the defect rate is particularly high.

A third State in the list is Virginia with a defect rate of 734. This State, one of the first settled in the country, apparently suffers in part from its age and consanguinous matings and in part from the nature of its colored population. Virginia stands among the first six States in the following defects: Speech defect, deafness, mental deficiency, mental alienation, sinusitis, hypertrophied tonsils, cardiac hypertrophy and cardiac dilatation, cardiac arrhythmias, tachycardia, total for hernia and enlargement of inguinal rings, mal-union of fracture of upper and lower extremities, hammertoe and hallux valgus, pronated foot, pes cavus and foot deformities



not specified, matatarsalgia, bullet or other recent wounds, and grand total for mechanical defects. Many of the foregoing defects are congenital defects, such as arise in a highly inbred population. Others of them seem to be due to bad conditions of living, such as are associated with mental defect. Another large number of them is probably due to infection with the micro-organisms of venereal disease.

At the bottom of the list stands the State with the lowest defect rate, Kansas, in which there were 422 defects per thousand men, only a little more than one-half the defect rate for Rhode Island. Near the bottom of the list stand also South Dakota, Nebraska, Kentucky, Arkansas. These are States which have received a small amount of the more recent migration from southeastern Europe. They are prevailingly white agricultural States (excepting certain parts of Arkansas with a rather high colored rate). This list, however, serves to warn that the influence of camp examiners has a considerable effect upon the final ratio, and it is to be kept in mind that Kansas, Nebraska, and South Dakota were all examined at Camp Funston and Arkansas at Camp Pike. At both these camps there was reason for believing that the physical examinations made were somewhat inferior in quality, so that the number of defects found were less than the average. This inferiority of the examinations is, however, much more striking in the case of Pike than in the case of Funston; and we must believe that the comparative freedom from defect of the States lying just east of the Rocky Mountains from South Dakota to Texas corresponds to a real physical preeminence.

Since not all defects are causes for rejection, there has been made a separate map, Table 3, figure 5, showing the distribution of causes of rejection by States. Here also Rhode Island stands at the top with a ratio of 424. This implies that perhaps 40 per cent of the registrants examined at Rhode Island had to be rejected for all military service. Considering the distribution of rejections as shown on the map, it will be noted that they lie chiefly along the Atlantic and Pacific seaboard and are relatively uncommon in the interior of the country, particularly west of the Mississippi River. The New England States, New York, and Michigan show a high rate for rejection. There is a considerable amount in Georgia and Tennessee (both examined at Camp Gordon), a large proportion from California and Washington, partly due to tuberculosis in the first case and various injuries in the second, and also in Louisiana. In the States west of the Mississippi, however, we find low rejection rates, such as in Wyoming, where less than 13 per cent of defects found were cause of rejection. Some similar results were obtained in Nebraska, Kansas, Arizona, Montana, Arkansas, and North Dakota. The inhabitants of these States are clearly a relatively physically fit lot. They represent a selection of the most vigorous of our population. On the other hand, the east seaboard has suffered by the loss of these fine young men who have migrated to the West, while those who are physically defective have more largely remained at home in the East. Also many immigrants of physically less fit stock have remained near the ports at which they have arrived from Europe, while representatives of the physically better-developed races have migrated west.

TABLE 1.—Total diseases or defects for United States, by States.

States.	Number of defects.	Ratio per 1,000 men.	States.	Number of defects.	Ratio per 1,000 men.
Rhode Island.....	11,627	802.03	North Carolina.....	30,230	545.91
Vermont.....	6,427	763.76	Tennessee.....	33,228	542.90
Virginia.....	40,848	734.08	New Mexico.....	5,550	542.47
Oregon.....	11,552	721.95	Georgia.....	34,497	540.40
Maine.....	13,987	705.63	Montana.....	14,601	532.44
California.....	55,621	689.55	New Jersey.....	39,879	525.26
Alaska.....	835	685.55	Louisiana.....	27,057	522.96
Colorado.....	15,283	679.40	North Dakota.....	9,299	520.57
Florida.....	16,304	675.87	Mississippi.....	19,514	517.90
Washington.....	23,678	665.99	South Carolina.....	20,173	511.99
Massachusetts.....	59,222	648.03	Oklahoma.....	30,910	508.68
Wyoming.....	4,215	635.36	Iowa.....	34,753	506.92
West Virginia.....	24,127	620.04	Minnesota.....	36,147	502.54
Maryland.....	23,051	619.45	Indiana.....	35,848	501.20
New Hampshire.....	5,261	617.49	Alabama.....	25,925	500.12
Utah.....	7,226	613.99	Ohio.....	71,075	497.45
Pennsylvania.....	22,053	603.48	Arizona.....	3,878	467.51
Connecticut.....	21,578	600.84	Texas.....	55,332	466.60
New York.....	153,222	594.23	Arkansas.....	19,670	460.75
Missouri.....	50,461	589.35	Kentucky.....	29,059	454.63
Wisconsin.....	36,790	582.12	Nebraska.....	13,169	446.72
Idaho.....	7,125	570.55	South Dakota.....	9,199	442.75
Nevada.....	1,864	566.22	Kansas.....	16,227	422.39
Michigan.....	55,466	560.57	State not specified.....	42,635	449.08
Illinois.....	99,123	552.81			
District of Columbia.....	6,356	550.78			
Delaware.....	2,781	550.15			
			Total.....	1,533,938	557.00

TABLE 2.—Grand total, defective men, by States.

States.	Number of men.	Ratio per 1,000 men.	States.	Number of men.	Ratio per 1,000 men.
Rhode Island.....	9,285	640.48	Montana.....	12,524	456.70
Vermont.....	5,190	613.19	Georgia.....	29,095	455.78
Virginia.....	33,621	604.21	North Carolina.....	25,134	453.89
California.....	47,099	583.89	District of Columbia.....	5,231	453.29
Oregon.....	9,274	579.59	New Jersey.....	34,340	452.30
Maine.....	11,271	568.61	Tennessee.....	27,077	442.40
Washington.....	19,533	549.41	Louisiana.....	22,708	438.90
Alaska.....	667	547.61	North Dakota.....	7,824	438.00
Colorado.....	12,259	544.97	Oklahoma.....	26,293	432.70
Florida.....	13,065	541.60	Alabama.....	22,171	427.70
Massachusetts.....	48,965	535.80	Mississippi.....	16,059	426.21
Maryland.....	19,581	526.20	Iowa.....	29,190	425.78
Wyoming.....	3,412	514.32	South Carolina.....	16,651	422.60
Connecticut.....	18,240	507.89	Ohio.....	60,209	421.40
West Virginia.....	19,743	507.38	Minnesota.....	30,246	420.50
Utah.....	5,953	505.82	Indiana.....	29,825	416.99
New Hampshire.....	4,305	505.28	Arizona.....	3,401	410.01
New York.....	129,621	502.70	Texas.....	47,712	402.40
Pennsylvania.....	101,125	500.00	Nebraska.....	11,408	386.99
Missouri.....	41,869	489.00	Arkansas.....	16,402	384.20
Idaho.....	5,985	479.26	Kentucky.....	24,423	382.10
Nevada.....	1,567	476.00	South Dakota.....	7,754	373.20
Delaware.....	2,402	475.18	Kansas.....	13,613	354.35
Illinois.....	84,498	471.25	State not specified.....	41,308	435.11
Michigan.....	46,227	467.20			
Wisconsin.....	29,390	465.03			
New Mexico.....	4,688	458.22			
			Total.....	1,289,493	468.21

TABLE 3.—Grand total men, rejections, by States (*D+Vg*).

States.	Number of men.	Ratio per 1,000 men.	States.	Number of men.	Ratio per 1,000 men.
Rhode Island.....	6,376	424.42	Wisconsin.....	15,949	200.38
Vermont.....	3,333	353.93	Florida.....	6,031	199.84
Maine.....	7,907	346.00	Mississippi.....	9,278	199.78
Massachusetts.....	28,996	267.26	Delaware.....	1,173	198.00
California.....	25,395	265.01	Alaska.....	347	194.18
Washington.....	10,898	262.78	Minnesota.....	15,927	189.69
Tennessee.....	17,680	245.60	Ohio.....	32,228	187.88
Virginia.....	15,492	245.57	South Dakota.....	4,796	187.59
Maryland.....	11,289	244.25	Nevada.....	775	186.03
New York.....	73,217	240.49	Oklahoma.....	13,297	184.93
Louisiana.....	14,728	239.05	Indiana.....	16,290	183.47
Michigan.....	26,147	233.12	Idaho.....	2,742	179.63
Connecticut.....	10,416	228.61	Alabama.....	11,224	179.60
Georgia.....	16,420	225.14	West Virginia.....	8,161	177.60
South Carolina.....	10,125	222.49	Texas.....	26,009	175.90
Oregon.....	4,198	219.79	North Dakota.....	3,783	167.01
Utah.....	3,133	219.27	Arkansas.....	8,892	163.90
Colorado.....	5,996	213.50	Montana.....	5,487	162.67
North Carolina.....	14,412	213.40	District of Columbia.....	2,145	162.54
Pennsylvania.....	48,555	209.31	Arizona.....	1,651	153.29
New Jersey.....	18,486	208.93	Kansas.....	6,862	147.29
Kentucky.....	16,615	207.26	Nebraska.....	5,117	134.64
Missouri.....	21,876	206.90	Wyoming.....	1,140	128.05
New Mexico.....	2,790	206.61	State not specified.....	11,700	246.44
Iowa.....	16,440	204.08			
New Hampshire.....	2,234	203.05			
Illinois.....	43,328	202.48	Total.....	687,486	212.06

TABLE 4.—Total defective men accepted, by States, placed in class (*A+B+C*).

States.	Number of men.	Ratio per 1,000 men.	States.	Number of men.	Ratio per 1,000 men.
Virginia.....	18,129	445.22	Maine.....	3,364	305.54
Oregon.....	5,076	428.50	New Mexico.....	1,898	303.00
Alaska.....	320	418.85	New Jersey.....	15,854	295.19
Wyoming.....	2,272	414.30	Oklahoma.....	12,996	291.80
Colorado.....	6,263	405.84	Arizona.....	1,750	290.17
California.....	21,704	394.45	Nebraska.....	6,291	283.80
Florida.....	7,034	390.34	Alabama.....	10,947	281.45
West Virginia.....	11,582	381.90	Michigan.....	20,080	280.79
Maryland.....	8,292	367.08	North Carolina.....	10,722	278.27
Vermont.....	1,827	365.77	Minnesota.....	14,319	277.91
Washington.....	8,635	361.42	Ohio.....	27,981	277.87
Pennsylvania.....	52,570	358.50	Georgia.....	12,675	276.55
New Hampshire.....	2,071	347.13	Indiana.....	13,535	275.85
Rhode Island.....	2,909	342.52	Texas.....	21,703	266.79
District of Columbia.....	3,086	339.72	Iowa.....	12,750	266.16
Idaho.....	3,243	339.30	Mississippi.....	6,781	258.76
Utah.....	2,820	339.15	Tennessee.....	9,397	251.94
Missouri.....	19,993	336.49	Louisiana.....	7,980	244.51
Massachusetts.....	19,969	334.73	Arkansas.....	7,510	244.11
Connecticut.....	7,824	331.03	South Carolina.....	6,526	232.85
Nevada.....	792	328.09	Kansas.....	6,751	232.04
Delaware.....	1,229	326.77	South Dakota.....	2,958	221.21
New York.....	50,404	325.68	Kentucky.....	7,808	208.04
Illinois.....	41,170	325.64	State not specified.....	29,608	258.21
Montana.....	7,037	324.78			
North Dakota.....	4,041	315.93			
Wisconsin.....	13,441	312.83	Total.....	601,917	306.84

For the purpose of securing populations of greater homogeneity some of the larger of the 48 States were divided into two or more sections, of which there were created altogether 156, of which the boundaries are shown on the map of the United States, figure 5. The defect rates for these sections are often more varied than those of the States. The highest rate found outside of the State of Rhode



Island is section 5, of Colorado, which is the city of Denver. This has a rate of 800. This high rate is made up by certain large rates like the following: Tuberculosis, 122; defective vision, 35; hypertrophied tonsils, 27; hernia, 49; flat foot, 184; and underweight, 40. The lowest rate of any section is section 1, of Kansas, which includes a strip along the Arkansas River in western Kansas. Here the rates for the diseases which we picked out in Colorado for their great size appear relatively small: Tuberculosis, 12; defective vision, 19; hypertrophied tonsils, 12; hernia, 18; flat foot, 104; and underweight, 1. Thus it is seen that the reason why Colorado has such a high defect rate is because of the higher rate for tuberculosis, underweight, hypertrophied tonsils, and flat foot, all of which may be dependent on infection with *B. tuberculosis*, whereas the low rate for Kansas and Nebraska is due to the low rate in these conditions as well as in some others. In the case of Rhode Island, which has even a higher defect rate than section 5, of Colorado, namely, of 802, the tuberculosis rate is small, 21, and the rate for flat foot is only 117; but, on the other hand, many of the rates for the selected defects are larger than in Colorado, and there are many others which have a high defect rate in Rhode Island. Thus defective vision has a rate of 57; underweight, 93; mental deficiency, 16; valvular lesions, 34; bad teeth, 42 underheight, 12. Thus the high rate in Colorado is primarily a high rate due to the selective gathering there of persons affected with active or latent tuberculosis, while the high defect rate in Rhode Island is due to small size and a number of defects indicative of poor stock and poor conditions of life. It is impossible in this introduction to discuss the significance of all fluctuations in defect rates of the different sections.

*Consolidation of similar sections.*—The 156 sections were brought together into 22 groups. These fall into three series, an agricultural series, a physiological series, and a racial series. Page — shows the names of these groups and the numbers of the sections included in each. For the different groups the ratio of defect found varies considerably. Thus, in the northern agricultural groups it is about 530; in the white agricultural group of the South, 520; in the Negro agricultural group, 500; in the eastern manufacturing group the rate rises to 590, while the commuter group has a rate of less than 540. In the mining group the rate is 569; in the sparsely settled group of the Southwest it falls to 570. In the desert group, including among others, Nevada, Arizona, and New Mexico, the rate is relatively high, 670. This is largely because of tuberculosis, underweight, and flat foot. In the maritime group the rate is 685. In the mountain group, 570; in the sections occupied largely by Indians the rate is relatively low, 530, and still lower in the Mexican section, 470. The "Native whites of Scotch origin" is a name applied to a group comprising two sections, with a rate of 473. Of the remaining racial areas that comprise over 10 per cent, Russians have a rate of 590; Scandinavians a rate of 543; the Finn section a rate of 520; the French Canadian section a rate of 684. Finally, there are three groups of Germans, Scandinavians, and Austrians combined in various proportions in which the rates run between 510 and 540. Thus, of all the agricultural groups the rate is lowest for the Negro group. It is highest in the manufacturing group, in the occupational series. It is remarkably high in the desert group on account of the tubercu-



losis and throat diseases. It is low in the groups containing a large proportion of Finns, Russians, and Scandinavians, still less in the sections containing a large proportion of Indians and Mexicans. Too much stress must not be laid upon the totals. Of interest, however, is the comparison of the relative frequency of the particular diseases in each group. The group containing a large proportion of mining population is characterized by a fairly high rate of venereal disease and by much tonsillitis, but relatively few cases of underweight. From a military standpoint the Northwest contains the best men of the country.

The occupations play a rôle in the distribution of defects. Bad postures at school, especially in the badly nourished and rickety, account for much of the curvature of the spine, and this is developed especially in the cities; standing in shops and walking on pavements in tight shoes accounts for many of the bad feet of city folk. Much school and clerical work tend to induce myopia in those so disposed. Probably dust, other irritants, and uncleanness of crowded quarters favor nose, throat, and ear inflammations in those predisposed. Straining the body by heavy work induces hernia; millwork in the South and lumbering in the North cause loss of upper extremities; lumbering and saw-mill operation cause loss of fingers and arms, and railroading causes loss of legs. Agriculturing is associated with good eyes, straight backs, and in the South (but less in the North) with freedom from flat foot and distorted toes. The eastern manufacturing group is characterized by an excess of myopia, valvular diseases of the heart, speech defect, bad teeth, and underweight. On the other hand, this group has a small amount of hernia and blindness of one eye. The commuter group is characterized, like the eastern manufacturing group, by myopia, also by an excess of otitis media; but the rate for tuberculosis and mental defect is exceptionally low. The commuter group represents the physically fittest of the population of the eastern section of the country.

Of the races the Negro is characterized by an abnormally high amount of venereal disease and its sequelæ, such as valvular heart disease, arthritis and ankylosis, by hemorrhoids, by poor emotional control, including tachycardia, hysteria, and psychasthenia, by relatively little otitis media, deafness, by defect of vision (though by much blindness of one eye), by little diabetes, spinal curvature, cryptorchidism, flat foot, and by many bullet and other wounds.

The Scandinavians are characterized by a slight amount of venereal disease, by relative freedom from hallux valgus, but by much flat foot and by a tendency to hernia. The German groups are characterized by neurasthenia, psychoneuroses, and various psychoses, but by relatively little mental deficiency; by an excess of myopia and curvature of the spine. The French Canadian group shows an extraordinary excess of defects in various important respects, such as tuberculosis, spinal curvature, deaf-mutism, mental deficiency and psychoses, refractive errors, otitis media, defective hearing, asthma, bad teeth, hernia, deficient size of chest, and height and underweight. The sections of which the French Canadians form a predominant factor are among the poorest from the military standpoint.

The groups occupied largely by Indians and Mexicans are characterized by a large amount of tuberculosis, by venereal disease, by ankylosis, cleft palate, and harelip. There is an intermediate

amount of hernia and a low rate of valvular diseases of the heart and deformities of the hand.

The mountain whites constitute a subrace of the whites occupying the southern Allegheny Mountains. They are characterized by an exceptionally high proportion of mental defect and mental disease, by varicose veins, by numerous deformities of the extremities and by underweight.

Various physiographic regions differ in their characteristic defects. We may distinguish the maritime, mountain, desert, and sparsely settled areas. The maritime district, apart from the great cities, includes a high defect rate for venereal disease, for various nervous and mental diseases, myopia, valvular diseases of the heart, myocarditis, arteriosclerosis, flat foot, hallux valgus, deficient teeth, and underweight. This group is largely influenced by conditions in the parts of Virginia bordering on Chesapeake Bay, as well as in the peninsular regions throughout the North. There is, on the other hand, a comparative absence of goiter and drug addiction.

The mountain sections, on the other hand, are characterized by goiter, deficient vision, valvular diseases of the heart, acquired defects, and bad teeth, while there is relatively a small amount of tuberculosis, of venereal disease, myocarditis, tonsillitis, arteriosclerosis, and deaf-mutism.

The desert region is characterized first of all by tuberculosis (due to the use of this region as a sanatorium), by hernia, trachoma, and flat foot, and by a small amount of myocarditis, defective speech, and bad teeth. The sparsely settled regions of the Northwest, outside of the desert territory, are characterized by high rates of goiter, hernia, flat foot, and deformities of the hand resulting from accident. On the other hand, there are low rates for nervous and mental disease, for eye defects, otitis media, and underweight.

These results are not to be interpreted as indicating the effect of conditions upon physique but they are also partly controlled by the constitution of the populations which have selected these regions as homes.

*Comparison of rural and urban.*—The whole country has been divided State by State into rural and urban districts as shown in Tables XIX to XXXI. These tables reveal a rural rate of 528 and an urban rate of 609. Thus, the selected cities showed about 15 per cent more of defects than did the rural districts. This excess of urban defects is largely determined by the excess of flat feet, which amounts to a rate of 25. There is also in the cities an excess of underweight, inflammation of the middle ear, errors of refraction, goiter, pulmonary tuberculosis, defective teeth, and syphilis. These defects in which the city rates surpass the rural rates are, however, partly counterbalanced by the greater amount in rural districts of mental deficiency, deformed and defective extremities, blindness in one eye, arthritis and ankylosis, and gonococcus infection. Thus, while the urban districts exceed in the defects due to inferior stock and bad environmental conditions, the rural districts exceed in hereditary congenital defects (partly due to the fact that many congenital defects increase in the population in consequence of consanguinous matings which are commoner in the rural districts than in great cities), and to accidental injuries (also to the excessive amount of rural Negro gonorrhea).

Thus, in summary, the northeastern part of the country appears to be characterized by congenital defects and those of city life. The Northwest is characterized by deformities due to accidents, by goiter, and by flat foot. The Southeast is characterized by venereal diseases, hookworm, and similar other complications, including blindness of one eye, arthritis and ankylosis, underweight, mental defect, emotional disturbances, pellagra, hernia, loss of upper extremity, and bullet or other wounds. The Southwest is characterized by tuberculosis, drug addiction, hypertrophied tonsils, and hernia. The northern central area is contrasted with the southern central by having more goiter, less tuberculosis, much less venereal disease, more varicocele and more varicose veins, more valvular disease of the heart and cardiac hypertrophy and dilatation, more deficient teeth, more psychasthenia and constitutional psychopathic states. It is characterized by more otitis media, errors of refraction, diabetes, curvature of the spine, defects of genitalia and weak feet, but less epilepsy, blindness of one eye, pellagra, loss of upper extremity, bullet and other recent wounds, underweight, and deficient chest measurement.



## DEFECTS FOUND IN DRAFTED MEN.

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### A. GENERAL CONSIDERATION.

#### I. SOURCE OF DATA.

On April 6, 1917, Congress declared war against Germany, and on May 17 there was approved by the President the selective-service law providing for the registration of all males between the ages of 21 and 30 years, both inclusive. Out of approximately 10,000,000 males registered between the ages mentioned, there were measured and examined physically at local boards before December 15, 1917, 2,510,706 men. According to the first report of the Provost Marshal General's Office 730,000, or 29.1 per cent, of these men were rejected on physical grounds. Of the number who were found physically qualified for full military service 516,212 were called and entrained for military camps before December 31, 1917.

About December 15, 1917, all registrants not yet called to the colors were required to fill out questionnaires, giving detailed information in regard to industrial and agricultural status. All registrants were placed in five classes, of which class 1 included those liable to immediate military service; the second draft was made on men of this class. All men who were classified as class 1 on economic grounds were re-examined physically even though they may have been found physically disqualified before December 15, 1917.

After December 15, 3,247,888 class 1 men were examined physically. This number added to the number of 516,212 men who had entrained for camps in the first draft before December 31, 1917, gives a total of 3,764,101 men to consider. After December 15 provisions were made for using men who might not be qualified for full military service in what was known as Class B, the remediable group, and Class C, the limited-service group. The creation of these two groups "B" and "C" rendered necessary the reexamination physically of all men who had been disqualified for full military service for the first draft and who were included in the 29.1 per cent. A careful tabulation was made from the cards on file in the Provost Marshal General's Office which had been furnished by the local boards. The figures obtained, including the total number of men entrained before December 31, 1917, and the total number of men who were placed in class 1, and physically examined after December 15, was 3,764,101, as given above. These figures are slightly at variance with the figures furnished in the second report of the Provost Marshal General's Office, but some changes are necessary, as information was received by that office after the report in question was sent to the printer.

Of the 3,247,888 men in class 1 physically examined by the local boards after December 15, approximately 549,099 men were rejected



as totally physically and mentally unfit for all military service. After January 1, 1918, 2,150,555 men from the first and second registrations were called and entrained for mobilization camps. This number, added to the number of 516,212 who had entrained for military camps before December 31, 1917, gives a total of 2,666,867 men of the first and second registrations who were called by the local boards and entrained for mobilization camps. These figures do not include the third registration and do not include the Students' Army Training Corps. There remained approximately 548,135 men of class 1 who were not called to the military colors other than the men who were physically and mentally disqualified. A certain number of these men were included in the third registration, some were awaiting call when the armistice was signed, some had been placed in the remediable group and limited-service group and had not been called, and, finally, others after their first classification and physical examination had been subsequently reclassified and placed in a class other than class 1.

## II. THE PURPOSE OF THE STUDY.

The office of the Provost Marshal General and Surgeon General recognizing the necessity of making a statistical study of the material from the physical examinations united in a joint communication on December 17, 1917, to The Adjutant General of the Army, requested that the reports of the physical examinations at the mobilization camps which were on file in that office be loaned to the Medical Record Section, Surgeon General's office, for the purpose of preparing statistical cards. This request was approved. Later the Provost Marshal General's office issued instructions that one of the three copies of Form 1010, report of physical examinations which were on file in the various local boards for all men of class 1 who had been examined and found totally physically and military unfit for military service be sent to the Medical Record Section, Surgeon General's office. As a result of this order 549,099 reports of physical examinations for men who had been found by the local boards to be totally physically and mentally unfit for military service were received by this office. At this point it is especially desirable to recall that this number of rejected men included the men who had been culled from the 516,212 men who had entrained for mobilization camps before December 31, 1918, as well as all other men who were placed in class 1 and examined or re-examined after December 15 and placed in the totally rejected class (class Vg). This group of 549,099 physical examination reports was one of the sources of information for this study. It is frequently referred to in the statistical tables as Vg. The second source, which has been already discussed in a preliminary fashion in Bulletin No. 11, Surgeon General's office, was a group of 994,206 examination reports for men who were sent to mobilization camps before about May 1, 1918. This number will be referred to as the first million men, and is frequently referred to in statistical tables as  $P_1$ . The third source of information is the group known as the second million men and referred to in the tables as  $P_2$ . Included in this last group were the physical examination data for 967,486 men out of the total number (1,672,661) remaining after about May 1 of men of the first and second registrations who were sent to the camps. This number, 967,486,

was obtained by taking that many physical examination reports from a general alphabetical file of the remaining 1,672,661. The records used began with the letter "A" and extended through the letter "N." The total number of physical examination reports, then, of the  $P_1$  and  $P_2$  groups prepared for study was 1,961,692. These were all of men examined at mobilization camps. This number was approximately 74 per cent of the total number of men of the first and second registrations who were sent to mobilization camps, i. e., of 2,666,867.

This number of physical examination reports of men sent to mobilization camps (which was, as stated, 1,961,692) added to the total of 549,099 for men who were rejected by their local boards as totally physically and mentally unfit for military service makes up a grand total of 2,510,591, which is the number of men considered in this study.

### III. METHOD OF ESTIMATING STRENGTH.

The method of estimating the strength for obtaining ratios for combination figures of men rejected by the local boards and men found with diseases or defects at the mobilization camps offers considerable difficulties. In dealing with the first and second million men or with the rejections by the local boards it was comparatively an easy matter to obtain the correct strength for the United States and for any part of the United States. When, however, an attempt was made to obtain proportionate figures to cover the 26 per cent of men who were sent to mobilization camps but for which no statistical study was made, and to cover the 548,135 men in class 1 who were not sent to mobilization camps, but from among whom the rejected are considered, considerable difficulty was encountered. After careful consideration it was decided to resort to the method of proportion and to scale down the number of class 1 men in proportion to the number of men for whom statistical study had been made. In making the study it was obviously necessary to obtain composite figures for various States, section of States, and cities made up from the results as shown by the local boards and from the camps; otherwise there could be no true cross section. Also, as it is well known, the efficiency of the local boards as well as the boards at the mobilization camps varied very materially and one must be used as a check against the other.

The following information was available and the numbers are believed to be fairly reliable:

1. The total number of men examined by the local board in the United States or in any portion of the United States. Represent by A.

2. The total number of men rejected by the local boards for the entire United States or for any section of the United States. Represent by B.

3. After the rejections by the local boards the number of men available for the United States or for any section of the United States. Represent by C.

4. The number of physical examination reports for which statistical cards were made in this office for the men who were examined at camps for the United States or for any section of the United States. Represent by D.

5. The number of men found defective at camps among the number for whom statistical cards were made in this office for the United States or for any section of the United States. Represent by E.

Using these figures we then made the following proportion:  $C : D :: V : E$ ; that is, the number available at the local boards, C, is to the number examined at camps for which statistical cards were made, D, as V, the total defectives in all the available at local boards (hypothetical number) is to E, the actual number found defective in the number examined at camps for which statistical study was made. Then B plus E equals X, or the actual number rejected by the local board plus the actual number found defective in the men examined at the mobilization camps for which statistical study has been made. B plus V equals Y, or the number of rejections by the local boards plus the calculated number which were defective in the total number of men available at local boards to be sent to camp. Now Y, the total number of defective men, divided by A, the total number of class 1 men, plus the number entrained before December 31, equals Z, the proportionate number of defective men. X (the actual number of defectives found in the study) divided by Z (the proportionate number found in the study plus the assumed defectives) equals S, the assumed strength for the United States or any part of it. The mathematical calculation in brief is as follows:

$$C : D :: V : E$$

$$B \text{ plus } E \text{ equals } X$$

$$B \text{ plus } V \text{ equals } Y$$

$$\frac{Y}{A} \text{ equals } Z$$

$$\frac{X}{Z} \text{ equals } S, \text{ assumed strength.}$$

In considering the rejections alone it was decided that it would be more accurate to estimate the proportion and the proportionate strength obtained upon the rejections in the second million men after deducting the rejections in the first million men. Consequently, the following formula was used, which, in view of the explanation above, is believed to be sufficiently clear without further explanation:

#### METHOD OF OBTAINING STRENGTH FOR REJECTIONS FROM $P_1$ PLUS $P_2$ PLUS L. B.

$P_1$ —First million men.

$P_2$ —Second million men.

L. B.—Local board.

A—Number examined by local board.

B—Number rejected by local board.

C—Number available to send to camp,  $A - B$ .

N—Number examined  $P_1$  at camp.

M—Number rejected  $P_1$  at camp.

D—Number examined  $P_2$  at camp.

E—Number rejected  $P_2$  at camp.

K—Number available after  $P_1$  examined at camp,  $C - N$ .

$\frac{K}{D}$  (E) = hypothetical number of rejections at camp in  $P_2$  and remainder available = Y.



B plus M plus V equals Y, the total estimated rejections.

B plus M plus E equals X, the actual number of rejections.

$\frac{Y}{A}$  equals Z, estimated ratio rejections for total number.

$\frac{X}{Z}$  equals S, estimated strength.

Stated in brief, the mathematical calculation is as follows:

A-B equals C.

C-N equals K.

$\frac{K}{D}$  (E) equals V.

B plus M plus V equals Y.

B plus M plus E equals X.

$\frac{Y}{A}$  equals Z.

$\frac{X}{Z}$  equals S.

It was found that with the proportionate strength obtained there was a certain number of difficulties encountered. The strength would hold proportionally true for the United States, States, and sections of States except in diseases such as tuberculosis and the various forms of psychosis, where the rejections constitute practically the entire number of men detected with that disease or defect.

Here it was noted that if the estimated strength for the total defects was used instead of the estimated strength for the total rejections that it gave an abnormal high proportion for the defect or disease. Consequently in preparing the charts and in the discussion of these particular diseases or defects by States the figures for the total rejections have been used rather than those for the total defects. In a similar manner, where the number of rejections was proportionately small as compared with the total number of defects discovered (as, for example, with venereal diseases), it was found that the figure showing the ratio for rejections was abnormally low as compared with the truer figures for the total defects.

Throughout the statistical tables it will be noted that the figures have been furnished for the first million men, second million men, both for the men who were accepted for class A; that is, general military service, class B, the remedial group, class C, the limited service, and class D, physically rejected. It will also be noted that the ratio of defects recorded for the second million men, and rejections as well, is higher than for the first million. The reason for this is two-fold: First, the boards at the mobilization camps had had time to become more thoroughly organized, various specialists had been added to the boards, the work was much more carefully done, and the results much more carefully recorded; second, when statistical cards were prepared for the first million men, only the major physical defects were taken according to the plan outlined in Bulletin No. 11, Surgeon General's office, "Physical Examination of the First Million Draft Recruits, Methods and Results," pages 43-46, inclusive. At the conclusion of the study it was found advisable to revise the method and make provision for a second physical defect or disease. Consequently, in the second million men and in cases of rejections



by the local board wherever a second defect was recorded, this was entered on the statistical card and was tabulated. This increases the defects encountered in the tables, particularly the ones of minor military importance. It did not, however, increase the number of rejections. In the discussion of venereal diseases and preparation of charts it was apparent that the data from the second million men was so superior to that obtained from the first million men that it was desirable to take the data from this source in the discussion of States rather than from the combination. It will be noted also that there was a small number of cases of these diseases noted among the rejected men by the local board. The reason for this was that as soon as it became apparent to any local board that a man was physically and mentally unfit for military service, the board under the regulations so recorded and did not enter any further data on the form.

Attention is invited to Table No. 2, where is shown the defective men by States and the total for the United States. In other tables and in the discussion included in this report, diseases and defects are considered rather than the actual number of men. Consequently, considering the second million men and the rejections by the local board, it will be found that the number of diseases and defectives noted and discussed is in excess of the number of defective men actually concerned. It is presumed that the medical profession and the country at large were more interested in the proportion which the number of cases of tuberculosis, heart diseases, or disorders of various kinds bore to total men examined than in the proportion these cases bore to the men who might have been partially or wholly disqualified by one or more of these diseases or defects, counting only one (the severest) defect to a man.

## B. CONDITIONS OF INVESTIGATIONS.

### I. DIAGNOSTIC TERMS.

An understanding of the diseases and defects found in men of military age requires some consideration of diagnostic terms employed. The physical examinations were made by about 4,648 local boards, with more than that number of examining physicians. Many of the men were examined also by medical advisory boards, with a total number of 9,577 examining physicians. In addition, they were examined by thousands of medical officers at the numerous Army cantonments, camps, and posts. This small army of physicians used, as was to be expected, a great variety of diagnostic terms. As the first step toward statistical analysis, it was necessary to adopt a limited number of terms into which the great number of terms could be grouped. Of these there were approximately 1,000, of which, however, a considerable proportion were related to infectious and other diseases, which were, as a matter of fact, not found in men at the time of physical examination. The work of condensing the great number of diagnostic terms used into 1,000 terms was done by the Coding Division of the Medical Record Office, with the aid of the Code Book for Diseases and Traumatisms, Medical Department, United States Army, 1918. In the primary tables the

number of defects and diseases belonging to each of these 1,000 categories was taken off. This table, however, was found too large for practicable convenience, consequently these diagnostic terms were condensed into 269 terms, called draft classification terms, which were used in all of the later tables. A grouping of the primary diagnostic terms into the 269 draft classification terms is given in the appendix. (Appendix is "Grouping of statistics of physical examination.") In this study the draft classification numbers will be used primarily. Of these, however, there were some that were actually employed but rarely, and for the more complete analysis use is made of about 72 of the more common categories. The 72 selected categories are listed in Table 1.

## II. THE PHYSICAL EXAMINATION STANDARDS.

In order to interpret the actual classifications by local boards and at camps of men found with these various diseases and defects, it is necessary to consider the standards under which the physical examinations were made and the instructions that were given the medical officer concerning the appropriate classification for men found with these different diseases and defects. It was very early recognized that a given disease or defect may occur in a variety of degrees, so that a different classification must be applied to men showing the given disease or defect according to the degree in which the given defect was present. With this general introduction, we pass first to a consideration of the definition of the different classes and of the requirements of the physical examination standards concerning the disposition of men found with the different diseases and defects.

First of all, however, it must be stated that during the draft period there were a variety of standards of physical examination prescribed. These were altogether seven in number and will be designated herein as P. S. O. Nos. 1, 2, 3, 4, 5, and 6.

P. S. O. is entitled "Rules for the examination of Recruits," General Order No. 66, War Department. It had been in effect for the Regular Army since April, 1910, and was, as a matter of fact, used at the examination of some drafted men in the earliest days of the examination period. Physical Examination Standards No. 1 became effective in July, 1917. It was entitled "Regulations Governing Physical Examinations Under the Selective Service Act of May 18, 1917, prepared by the Surgeon General of the Army" (Form No. 11, Provost Marshal General's Office). These were drawn up primarily for the guidance of local boards, but they applied also to examiners at mobilization camps.

Physical Examination Standards No. 2 was issued in the form of circulars and memoranda between June 13 and August 23, 1917. It consisted primarily of directions to examiners at mobilization camps concerning the technique of examination, but it also prescribed standards in certain cases.

Physical Examination Standards No. 3 were incorporated in the "Selective Service Regulations, Part VIII." These were instructions for local boards. They became effective in November, 1917. Important changes were made in "Changes, Selective Service Regulations, No. 4, issued January 28, 1918." These standards provided



for a reference to medical advisory boards of all doubtful cases. In March, 1918, there were issued Physical Examination Standards No. 5, consisting of a "Manual of Instructions for Medical Advisory Boards" (Form 62, Provost Marshal General's Office). This confirmed practically all of the standards for local boards as given in Physical Examination Standards No. 4, but gave detailed directions for classifying doubtful cases which had been referred to the medical advisory boards by the local boards. Detailed accounts of the prescriptions in Physical Examination Standards No. 0-5 are given not only in those standards but are summarized in Bulletin No. 11, Office of the Surgeon General of the Army (March, 1919), entitled "Physical Examination of the First Million Drafted Recruits, Method and Results," compiled under direction of the Surgeon General, Washington, Government Printing Office, 1919.

Physical Examination Standards No. 6. Under date of June 5, 1918, there was issued a pamphlet from the Office of the Provost Marshal General (Form 75) entitled "Standards of Physical Examinations Governing the Entrance to All Branches of the Armies of the United States for the Use of Medical Officers of the Regular Army, National Army, National Guard, Medical Reserve Corps, Recruiting Officers of the United States Army, and of Local Boards and Medical Advisory Boards under the Selective Service Regulations." This pamphlet was reprinted, essentially without change, as Special Regulations No. 65 of the War Department, with the title, "Physical Examination for Entrance into the Army of the United States by Voluntary Enlistment or by Induction under the Selective Service Law." Besides the title, the only change is in the following "erratum":

At the end of the third line, page 303, after the word "service," add the following: "Except that in the discretion of the Surgeon General of the Army applicants for voluntary enlistment who have venereal diseases may be rejected by recruit officers."

Form No. 75 and Special Regulations No. 65 were effective during the remainder of the period of physical examinations to October 15, 1918. However, on September 27, 1918, there was issued as Form 75, second edition, by the Office of the Provost Marshal General, a pamphlet entitled "Standards of Physical Examination for the Use of Local Boards, District Boards, and Medical Advisory Boards under the Selective Service Regulations" (Physical Examination Standards No. 7). The principal changes from Form 75 consist of making available the greater number of registrants having remediable defects (Group B) by transferring them to Group C for special or limited service. Also, certain variations from Army physical standards were given to be applied to candidates for the Navy and Marine Corps.

It may be added as a matter of historical interest that the changes in the standards given in the second edition of No. 75 were adopted by the Surgeon General's Office as a basis of instructions to medical advisors at camps and cantonments, "Special Regulations, No. 65, War Department, revised November 8, 1918," but these standards were not utilized on account of the signing of the armistice, November 11, 1918. Practically the regulations under which local boards and camps were acting were the physical examination standards



herein enumerated as No. 0-6. The dates at which these different standards became authorized are shown in the following table:

*Physical examination standards.*

No.	To whom applicable.	Date of authorization. <sup>1</sup>
0	Medical officers, recruiting stations, and camps.....	Apr. 18, 1910.
1	Local boards and examining officers, camps, and cantonments.....	July 2, 1917.
2	Medical officers, camps, and cantonments.....	June 13-Aug. 23, 1917.
3	Local boards.....	Nov. 8, 1917.
4	do.....	Jan. 28, 1918.
5	Medical advisory boards.....	Mar., 1918.
6	All medical officers, local boards, and medical advisory boards.....	June 5, 1918.
7	Local boards, district boards, and medical advisory boards.....	(Sept. 27, 1918. Nov. 8, 1918.

<sup>1</sup> The date of authorization usually anteceded by some days or weeks the date at which the examining boards actually made use of the standards.

### III. DEFINITIONS AND STANDARDS OF LEADING DIAGNOSTIC TERMS.

1. *Pellagra*.—Physical Examination Standards No. 6 prescribed this disease as a cause of unconditional rejection for any military service.

2. *Tuberculosis, all*.—This includes pulmonary tuberculosis; suspected tuberculosis or weak lungs, and tuberculosis of other organs. Pulmonary tuberculosis has always been a cause for rejection. Physical Examination Standards No. 6 prescribed the unconditional rejection for all military service of persons having tuberculosis of a bone or joint and a history of tuberculosis of a bone or joint which has been active within 10 years of the time of the examination.

3. *Pulmonary tuberculosis and suspected tuberculosis, or weak lungs*.—These are for statistical purposes taken out of the general group of tuberculosis and treated also separately.

4-7. *Venereal diseases*.—This is the third most important group of defects found at mobilization camps. Before the war it was the cause for rejection at recruiting stations. Physical Examination Standards No. 1 stated that gonorrhea was not to disqualify. Physical Examination Standards No. 3 made syphilis a cause of rejection only when permanently incapacitating. Physical Examination Standards No. 4 specified the acceptance of all acute and chronic cases of gonorrhea or syphilis that have no complications permanently incapacitating. Physical Examination Standards No. 6 prescribed the unconditional acceptance of gonorrhea, syphilis with remediable manifestations, chancroids and the resulting infection of the lymph glands of the groin. Hence, practically all but the more pronounced cases of syphilis were accepted for general military service.

8. *Curvature of the spine*.—Physical Examination Standards No. 1 prescribed rejection for lateral curvature when it exceeds 1 inch to either side of the line of spinous processes. Physical Examination Standards No. 3 prescribed rejection for curvature only when it is sufficient to interfere with function, or to constitute marked deformity when in uniform. Physical Examination Standards No. 5 prescribed unconditional acceptance for general military service of lateral curvature of the spine of 2 inches or less from the normal midline if the mobility and weight-bearing power are good, but lateral

deviation of the spine from the mid-dorsal line of more than 2 inches and less than 3 inches permits only of special and limited military service. A greater amount of curvature of the spine required unconditional rejection.

9. *Arthritis*.—This disease, often included under the term "rheumatism," was recorded as a cause for rejection in the first standards issued for use of local boards in the following terms: "Chronic rheumatism and diseases of the joints of disabling type" are a cause for rejection when they occur in either of the extremities. These standards were repeated in Physical Examination Standards No. 3 and seem not to have been modified in later standards, although arthritis is not especially referred to in the grounds of unconditional rejection of the standards published in June, 1918.

10. *Goiter, exophthalmic*.—The earlier standards did not lay much stress upon this condition. Physical Examination Standards No. 2 stated that persistent tachycardia, exophthalmos, tremor, and enlarged thyroid were matters to be especially considered, and Physical Examination Standards No. 3 ordered that they are a cause for rejection. Physical Examination Standards No. 4 directed local boards to reject fully developed exophthalmic goiter under certain conditions, and such direction persisted through the remainder of the examination period.

11. *Goiter, simple*.—Physical Examination Standards No. 3 prescribed simple goiter, when sufficiently severe to interfere with the wearing of military collar, a cause for rejection. Physical Examination Standards No. 4 directed to accept registrants with normal enlargement of the thyroid with no toxic symptoms. Physical Examination Standards No. 6 stated that simple goiter unassociated with toxic symptoms but so large as to interfere with wearing a uniform or military equipment might be admitted into the unconditionally accepted group.

12. *Obesity*.—Physical Examination Standards No. 1 gave the highest acceptable weight for height 78 inches as 211 pounds, but permitted an excess of 24 pounds for the evidently vigorous and healthy. It adds, "variations of weight above the standard are not disqualifying unless sufficient to constitute obesity." During the remaining Physical Examination Standards a maximum of weight was recognized beyond which the subject was to be carefully examined and if, in the opinion of the examining boards, the drafted man was too obese for military purposes he was to be rejected unless the variation was correctable with proper food and physical training.

13-14. *Alcoholism*.—Physical Examination Standards No. 2 prescribed rejection for military service of confirmed inebriates and drug addicts. But this prescription was not included in Physical Examination Standards No. 3. Physical Examination Standards No. 4 required rejection in chronic alcoholism, provided the registrant on examination shows:

Suffused eyes, prominent superficial blood vessels of nose and cheek, flabby, bloated face, red or pale purplish discoloration of mucous membrane of pharynx and soft palate; muscular tremor of the protruded tongue and extended fingers; tremulous handwriting, emotionalism, prevarication, suspicion, auditory and visual hallucinations, and persecutory ideas. The history or evidence that the registrant has been frequently and grossly intoxicated is not of itself sufficient for a diagnosis of chronic alcoholism and rejection.



Physical Examination Standards Nos. 5 and 6 continued this definition. They also prescribed conditional acceptance in the remediable group of drug addicts, including the habitual use of opium and its derivatives, and cocaine. This seems to have been the first formulation of the policy of remedial treatment of drug addicts.

15. *Hemiplegia, apoplexy, and facial paralysis, paraplegia and monoplegia.*—These different types of partial local paralysis were not referred to in the earliest standards. In Physical Examination Standards No. 5 it was prescribed that—

Registrants shall be rejected when the examination reveals definite signs and evidence of organic and nervous disease, except that registrants in whom the history suggests an organic disease of the nervous system and who may have certain aftereffects shall be accepted as physically qualified for military service, provided (a) the disease is no longer operative and is not likely to recur and (b) the effect left by the disease will not prevent a satisfactory fulfillment of general military duties.

Examples: Paralysis of a few unimportant muscles following poliomyelitis, slight unilateral hypertonicity as a result of infantile hemiplegia in a man now robust, and various traumatic conditions. A history of hemiplegia occurring after infancy should always be a cause of rejection, even if no symptoms remain.

Physical Examination Standards No. 6 makes about the same prescription, but requires the unconditional rejection of registrants suffering from paraplegia and hysterical paralysis or hysterical astigmatism so serious as to be disqualifying for military service.

It appears, then, that the physical examination standards in this group left much to the judgment of the examiner.

16. *Epilepsy.*—Physical Examination Standards No. 2 instructed physical examiners at camp to reject for epilepsy. Meanwhile no such instructions had been given to local boards until November, 1917. After that this prescription held.

17. *Neurasthenia, psychasthenia, and psychoneuroses.*—There is reason for thinking that most medical examiners did not sharply distinguish between these three diagnostic terms. Physical Examination Standards No. 2 prescribed rejection of mental disease and pathological mental states in which it seems to include psychoneuroses, such as hysterical stigmata, phobias, morbid doubts and fears, anxiety attacks, hypochondriasis; also psychopathic character, including the homosexual, grotesque liars, and vagabonds. It was not until March, 1918, that instructions covering these defects were issued to the local and medical advisory boards. In Physical Examination Standards No. 5 of March, 1918. These state: "Chronic essential chorea should disqualify." Physical Examination Standards No. 6 have been actually and continuously incapacitated for a period of six months prior to May 18, 1917, from symptoms of hysteria, neurasthenia, psychasthenia, constitutional psychopathic state, etc.

18. *Chorea.*—This nervous affection involving forced movements seems not to have been especially referred to before Physical Examination Standards No. 5, of March, 1918. These state: "Chronic essential chorea should disqualify." Physical Examination Standards No. 6 prescribed unconditional rejection of chronic essential chorea. We see, therefore, that the prescription of rejection of this nervous disease was specifically given only after March, 1918, though many of the earlier instructions were sufficiently broad as to permit rejections of chorea by medical advisory boards.



19. *Defective speech*.—Physical Examination Standards No. 2 prescribed rejections of disorders of speech on test phrases, plus facial tremor; but this was clearly to detect cases of general paralysis. Physical Examination Standards No. 4 required acceptance of registrants with speech defects unless the speech can not be understood. Physical Examination Standards No. 6 specified the acceptance for special or limited military service of registrants who suffer from "stuttering and stammering to a degree disqualifying for general military service," but which has not been disqualifying in successfully following a useful vocation in civil life. It is to be noted, therefore, that only grosser forms of speech defects led to disqualification and, from June, 1918, onward, such defectives were to be accepted for special or limited service.

20. *Deaf and dumb, mute*.—Although not especially prescribed, it is clear that mutes must necessarily be rejected from military service, especially when, as is usually the case, this is associated with congenital deafness.

21. *Deaf*.—From the beginning local board examiners were required to test for hearing and to report registrants with less than half the normal acuity of hearing. However, from June, 1918, it was prescribed that registrants may be accepted for special or limited military service with deafness in one ear and normal hearing in the other; with hearing in one or both ears less than 10/20 or more than 5/20. They were to be unconditionally rejected when the hearing of one or both ears was less than the minimum hearing required for special or limited military service. Thus, with the development of the special or limited service group, a large number of men who could not previously be utilized for any military service now became available.

22. *Constitutional psychopathic state*.—Physical Examination Standards No. 2 required the rejection of psychopathic character, and as we have seen Physical Examination Standards No. 5 prescribed the rejection of registrants who had been continuously incapacitated for six months with this condition, or with constitutional psychopathic state. In Physical Examination Standards No. 6 this was again made an unconditional cause of rejection for all military service.

23. *Mental deficiency*.—Physical Examination Standards No. 1 prescribed "lack of normal understanding" as a cause for rejection. Physical Examination Standards No. 2 stated that mental defect or deficiency is a cause of rejection for military service and suggests methods for detecting it. Physical Examination Standards Nos. 3 and 4 repeat the prescriptions. Physical Examination Standards No. 4 developed something of a definition of grades of idiocy and imbecility. These requirements were continued in Physical Examination Standards Nos. 5 and 6. In general, mental deficiency of the grade of imbecility or below was a ground for unconditional rejection for any military service.

24. *Dementia precox; psychosis, manic-depressive*.—This is superficially stated to be a cause of rejection for military service in Physical Examination Standards No. 2 and thenceforth other forms of insanity were required to be reported.

25. *Myopia*.—The changes in physical examination standards for short-sightedness are described in Bulletin No. 11, Surgeon General's

Office. Special Regulations No. 65 continue these prescriptions and the methods of detecting eye defects.

34. *Deviation of nasal septum and hypertrophy of turbinate.*—The deviation of nasal septum which causes a symmetry of the nose is often accompanied by hypertrophy of the turbinates of the nasal fossæ. Such cases were to be unconditionally accepted unless the defects seriously interfered with nasal breathing, in which case the registrant is unconditionally dejected. (Physical Examination Standards No. 6.)

35. *Sinusitis.*—The infection of the sinuses of the head constitutes an almost incurable condition. Its seriousness seems not to have been sufficiently recognized in the early physical examination standards. However, by March, 1918, medical advisory boards were instructed to examine suspicious cases for sinusitis. If this exists the registrant is to be placed in the deferred remediable group. After the infection disappears then the registrant may be accepted as physically qualified for general military service. Chronic sinusitis of the accessory sinuses of the nose became in Special Regulations No. 65 ground for unconditional rejection. Thus we see that the classification of a person in whom sinusitis had been observed would depend upon success in curing the disease.

36. *Tonsillitis, hypertrophic.*—Physical Examination Standards No. 1 prescribed the rejection of hypertrophy of the tonsils sufficient to interfere with respiration or phonation. Physical Examination Standards No. 3, however, stated that hypertrophied tonsils are henceforth not disqualifying; but if the hypertrophy is sufficiently marked to interfere with respiration or phonation, the registrant shall be advised to have the enlarged tonsils removed immediately, pending receipt of orders to report for duty. Physical Examination Standards No. 5 prescribed the acceptance of registrants with enlarged tonsils if obstruction to nasal breathing be not complete and this prescription apparently held through the remainder of the selection period.

37. *Heart diseases and defects—Endocarditis.*

38. *Valvular diseases of the heart.*

39. *Cardiac hypertrophy, cardiac dilation.*

40. *Myocarditis.*—The earlier physical examination standards and their variations are referred to in Bulletin No. 11. Clearly marked diseases of the heart of all these types were causes of rejection from general military service at all stages of the draft. Indeed, valvular diseases, hypertrophy, and dilatation of the heart were causes of unconditional rejection for all military service.

41. *Arteriosclerosis and hypertension.*—Physical Examination Standards Nos. 5 and 6 prescribed that a systolic blood pressure above 160 m. m. was disqualifying for active service. Physical Examination Standards No. 6 is more stringent than No. 5, in that No. 5 alone permits the recruit with such an impairment to be accepted for special or limited military service. Physical Examination Standards No. 5, but not No. 6, states that "small thickening of the arteries without high blood pressure or enlargement of the heart, and with normal resistance to exercise shall not disqualify."

42. *Hemorrhoids, varicocele, varicose veins.*—These defects, though ordinarily found in different parts of the body, have this



in common that they indicate a weakness of the wall of the veins so that they may break down, releasing blood and serum into the connective tissue spaces of the skin.

The earlier physical examination standards prescribed rejection for pronounced varicose veins and for varicocele when it interferes with locomotion. Physical Examination Standards Nos. 4 and 5 let down the bars in this respect. Physical Examination Standards No. 6 prescribed unconditional rejection for all military service of registrants with large internal or external hemorrhoids associated with prolapse of the rectum. Without such prolapse the registrant is to be unconditionally accepted. With large internal hemorrhoids accompanied by prolapsus and hemorrhage the registrant may be placed in the deferred remediable group.

43. *Cardiac arrhythmias, cardiac murmurs, not organic; cardiac disorders, functional.*—These functional disorders of the heart were referred to in Physical Examination Standards No. 1 in the following terms:

In examining the heart care must be taken not to ascribe to disease the hurried, sharply accentuated action sometimes due to nervousness, fright, or embarrassment, or the irregular action caused by the excessive use of tobacco. Nor should the examiner attach undue importance to the soft systolic murmurs often heard in growing athletic youths, functional and temporary in their nature.

Physical Examination Standards No. 2 developed this specification and offered means of differential diagnosis between functional and organic murmurs.

Very much was left to the judgment and experience of the examiner in deciding whether to accept unconditionally or to accept conditionally persons with heart disorders that were probably merely functional.

44. *Tachycardia.*—Physical Examination Standards Nos. 5 and 6 required the unconditional rejection for all military service of all registrants showing a persistent heart rate of 100 or over in the recumbent position.

45. *Bronchitis.*—This condition of inflammation of bronchial tubes was found in a rather large number of cases at times of physical examination. Physical Examination Standards, No. 5, specified: "The rejection of registrants with fetid bronchitis, bronchial asthma, well-marked chronic bronchitis, and emphysema." It prescribed the acceptance for special or limited military service of all registrants with well-marked chronic bronchitis (without emphysema). These specifications were continued in Physical Examination Standards, No. 6. Acute bronchitis that is not tuberculous was to be unconditionally accepted.

46. *Asthma.*—This disease was a cause of rejection only in its bronchial form. (Physical Examination Standards, No. 5.) Physical Examination Standards, No. 6, prescribed unconditional rejection of registrants with chronic asthma, associated with chronic bronchitis and emphysema, but registrants unconditionally accepted with hay fever and, presumably, with asthma not associated with chronic bronchitis and emphysema.

47. *Defective and deficient teeth.*—This condition was recorded only when so marked as to be of military importance. In some cases it implied doubt as to the acceptance of the registrant; in many other



cases the entry was made merely to call attention to a marked defect. The changes in physical-examination standards regarding minimum requirements of serviceable teeth varied from the beginning to toward the end of the draft period, when there was a general tendency to let down the bars. Physical Examination Standards, No. 1, prescribed that to be accepted the person must have at least four serviceable molar teeth, two above and two below on each side. This minimum of eight was reduced to six masticating teeth in the later standards, but these specified six functional incisor teeth.

48. *Hernia*.—The early physical-examination standards required the rejection of hernia. However, by February, 1918, cases of small or remediable reducible hernia were to be accepted, and Physical Examination Standards, No. 5, required that all remediable hernias should be placed in the deferred remediable group and that irreducible hernias should be placed in group C. Only large irreducible hernias, incapacitating for any military service, should be unconditionally rejected. Physical Examination Standards, No. 6, continued the same specifications.

49. *Enlargement of inguinal rings*.—The enlargement or relaxation of inguinal rings, though treated separately from hernia, often results in hernia when the registrant is subject to a strain. It is a condition which clearly does not interfere with unconditional acceptance.

50. *Nephritis*.—Inflammation of the kidney was a fairly common defect found by draft examiners. Physical Examination Standards, No. 3, prescribed rejection of chronic disease of the kidneys if confirmed by laboratory tests. Physical Examination Standards, No. 4, for local boards, required them to refer all cases in which the history and examination indicate an acute or chronic nephritis to the medical advisory board. Medical advisory boards were, in March, 1918, instructed that severe infections of the kidney should be rejected. Also "chronic nephritis disqualifies for any military service, while acute transitory nephritis does not disqualify after all the symptoms have disappeared and repeated examinations of the urine are negative." Physical Examination Standards, No. 6, prescribed that chronic nephritis shall lead to unconditional rejection; while albuminuria, with or without casts, which is proved to be temporary, shall be unconditionally accepted. Acute cystitis proved not to be temporary in character causes unconditional rejection.

51. *Hydrocele*.—This condition was ordered to be accepted in Physical Examination Standards Nos. 4 and 5. Physical Examination Standards No. 6 prescribed the acceptance in the remediable group of hydrocele of large size; hydrocele of moderate size being unconditionally accepted.

52. *Malunion of fracture of upper and lower extremity; also faulty union of fracture; also shortening of lower extremity*.—This group is indicative of liability to mechanical accidents, on the one hand, and to faulty surgery on the other. It includes important imperfections from the military point of view. Physical Examination Standards No. 3 prescribed "the rejection of men with irreducible dislocation or false joints; old dislocations if attended with marked impairment of motion or distortion of the joint \* \* \* badly united fractures." Physical Examination Standards No. 5 stated that the decision as to the acceptance or rejection for general or for

special limited military service for affections of the bones and joints of nontuberculous character shall depend upon the function of the involved portion of the extremity at the time of the examination. Further details for deciding as between acceptance or rejection are set forth.

Physical Examination Standards No. 6 prescribed unconditional acceptance of fractures which have been operated upon and fixed by any mechanical measure with a resulting good function. Ununited fractures are accepted only in the remediable group. Moderate deformities of the extremities permit acceptance for special and limited military service, but old, unreduced dislocations which have interfered with the registrant following a useful vocation in civil life cause unconditional rejection.

53, 54. *Loss of whole or part of upper extremity or lower extremity.*—These are clear causes of rejection from military service.

55. *Ankylosis, bony or fibrous.*—Ankylosis is a common sequela of arthritis. Complete or partial ankylosis of a joint was a cause of rejection in prewar standards, and these were continued during the early months of the draft. By March, 1918, however, the standards had become more liberal, leaving to the examiners' judgment to decide whether or not ankylosis would prevent functioning of the appendages for general or for special limited military service. At the same time it was prescribed that if the limitation of active motion is not more than 25 per cent of the normal registrants may be accepted for general military service. But if the restriction of the motion is more than 25 per cent of the normal, or when two or more joints are involved irrespective of the degree, the registrant shall be accepted for special or limited military service only unless the medical advisory board concludes that he is incapable of any service, when he is to be rejected.

Finally, in June, 1918, it was prescribed that stiff fingers of minor degree should not prevent unconditional acceptance. Only if the—

disease of bone or joint healed with such resulting deformity that the function is impaired to such a degree that it will interfere with military service is the registrant to be unconditionally rejected, and in general disease of the bone or \* \* \* ankle joint which seriously interferes with function and weight-bearing power is cause for unconditional rejection.

Thus we see that the requirements concerning ankylosis, though strict at the beginning, were more liberal during the early part of 1918 and subsequently were made more general, throwing the onus of deciding whether a particular case should be accepted or rejected upon the examiner.

56, 57. *Hammer toe and Hallux valgus.*—Before the war the physical examination standards required rejection of overriding or superposed toes when they produced subjective symptoms. Also hallux valgus was disqualifying when sufficiently marked as to interfere with locomotion or when accompanied with a painful bunion. Hammer toe, when existing in a marked degree, was cause for rejection. These standards were continued in the early months of the draft. In August, 1917, however, warning was given that "hallux valgus" per se is not disqualifying unless excessive and accompanied by "symptoms." Also of hammer toes it is specified:

One of these on a foot is not disqualifying, but more than one should cause rejection, unless the registrant can be operated on with success.



In November it was specified that "hammer toe is cause for rejection if it is well marked and interferes with the wearing of an ordinary shoe."

By February, 1918, the specifications were made more liberal in that they required acceptance of hammer toe, hallux valgus, and some other foot defects if "they do not interfere with the wearing of an ordinary shoe and with walking and with weight-bearing power." Power of rejection for foot cases was taken from the local boards and the medical advisory boards were told to accept for general military service all such foot cases when it was believed that "the lesion is remediable by treatment or operation." The liberality of the standards of the spring of 1918 apparently did not work out altogether satisfactorily in practice. In June, 1918, it was prescribed that "slight hallux valgus which is unassociated with exostoses or bunion of any size" is to be unconditionally accepted and "hammer toe which is flexible is also to be unconditionally accepted." But hammer toe with rigidity is to be placed in the remediable group "and all foot defects that prevent the registrants from wearing a military shoe, but had not prevented them from following a useful vocation in civil life," are to be placed in the special or limited military service class. Hallux valgus if severe and accompanied by exostoses or painful bunion of any considerable size is cause for rejection, and so also, in general, are deformities which interfere with function.

58. *Pes planus and pronated foot.*—An army has to go on its feet and its capacity for going is limited by the capacity of the feet of the men to function. A breaking down of the arches of the foot, flat foot, is the commonest cause of disfunctioning, and therefore the most serious single obstacle in the formation of an effective army from men in civil life.

Before the war flat feet, accompanied by symptoms of weak feet, were a cause for rejection. In the first standards for the use of the draft, warning was given that a "a broad, flat foot is common in laboring classes \* \* \* and is in no way disabling"—to unfit a man for service the arch has to be far gone. In February, 1918, it was prescribed that flat feet are to be accepted if they do not interfere with walking and weight-bearing power. In March, medical advisory boards were ordered to accept such feet when the defect was considered "remediable by treatment or operation."

In Physical Examination Standards No. 6, June, 1918, it was directed to accept unconditionally "a low or even absent longitudinal arch if the foot is otherwise practically normal in shape and flexibility." It was not directed specifically to refer cases of flat feet to the remediable group. However, defects of the foot which disqualify for general military service might, within limits, be used for special and limited military service. Finally, "an absent longitudinal arch of the foot associated with a limitation of dorsal flexion, rigid metatarsal and subastragaloid joints, rigid toes, and marked pronation" was to be unconditionally rejected.

Thus, in the latter part of the draft period the requirements as to flat feet, which had been unduly lowered, were raised somewhat and the specifications made more precise. We shall see how these varied



specifications work out in practice by noting the classification made at camp of the cases of flat feet found.

59. *Deformities of the foot not specified, also pes cavus.*—This group includes not only the hollow foot, pes cavus, but also cases of flat feet and otherwise deformed or badly injured feet, including ingrown toe nails. Before the war most of these conditions were made disqualifying unless obviously and easily remediable or of very slight degree. Later, conditions of acceptance were made somewhat more liberal. In the standards issued June, 1918, it was prescribed that—

club foot of slight degree, if the deformity has been corrected to the degree that the tarsus, metatarsus, and phalanges are flexible and the condition permits the wearing of an ordinary shoe, should be unconditionally accepted.

Even slight claw toes and the absence of one or two of the small toes of one or both feet (provided function of the foot is good) and also ingrowing toe nails were to be unconditionally accepted for general military service. Web toes could be used only in special or limited military service. Finally, rigidity of the tarsus and metatarsus toe to former infectious processes, with or without flat foot, marked claw toes, abnormal flaccidity of the toes and foot when associated with evident severely painful symptoms; loss of great toe or more than two small toes of either foot; clubfoot of even moderate degree were to be unconditionally rejected.

60. *Hand, deformities of, injury or infection; loss of one or more fingers.*—Though less important, in the mass, than foot deformities, those of the hand were, nevertheless, of military significance. The first standard issued to local boards prescribed rejection of—

webbed fingers, permanent flexion, extension, or loss of motion of one or more fingers; loss or serious mutilation of either thumb; total loss of index finger of the right hand; total loss of any two fingers on the same hand; or loss of the second and third phalanges of all the fingers of either hand.

These prescriptions held during the early half of the draft period. In March, 1918, local boards were advised that the loss of the thumb or index finger, two fingers on one hand, the presence of webbed or contracted fingers, should not be the cause of unconditional rejection, but should place a man in the special or limited military service group. The standards of June, 1918, permitted rejection for hand defects only when both thumbs were missing or two entire fingers of one hand. Registrants were to be accepted unconditionally when the left thumb was absent and when only one finger (unless it was the right index finger)—is missing on either hand. Also moderate scars were not to interfere with unconditional acceptance. Thus we see that the conditions for acceptance of hand defects became progressively more liberal during the draft period.

61. *Metatarsalgia.*—The ordinary instructions issued to medical officers at cantonments laid stress upon the importance of pain in the foot as indicative of a serious disfunctioning. In directions for local boards of November, 1917, attention was directed to the necessity of rejecting flat feet if attended with subjective symptoms, and thereafter the functional criterion of foot effectiveness was insisted upon. The requirements of June, 1918, specified unconditional rejection "of abnormal flaccidity of the foot and toes when associated with evident severely painful symptoms." Thus, pains in the metatarsus (as well as other parts of the foot) were considered an important criteria for rejection.

62. *Deformity, location not given; deformity of trunk; deformity of head; deformity of chest.*—The Army ideal of physical fitness does not tolerate any considerable physical deformity. We have seen that acceptable curvature of the spine was limited to a deviation of 1 inch and that malunion of fractures of the extremities is a noteworthy cause of rejection. In the first standards issued to local boards it was ordered to reject persons with flat or narrow or malformed chest (associated with disease of lungs and heart) and in the instructions issued to medical officers at camps “deformities from previous disease, extreme mal-postures with accompanying deformities, etc.,” were to be regarded as disqualifying. However, by the early spring of 1918 it was directed that some deformity of the extremities involving loss of not more than 25 per cent of normal motion should be accepted. In the regulations of June, however, it was provided that moderate deformities of the extremities were to be used for special or limited military service, while “old dislocations and deformities due to fracture or other injury which interfere with function and weight-bearing power” were to be unconditionally rejected.

For the most part, therefore, noteworthy deformities belonging to this group were to be cause for rejection, except in so far as, beginning with 1918, they would permit a registrant to do limited or special military service.

63. *Atrophy of muscle of upper extremity and lower extremity.*—This very serious defect was from the beginning regarded as a ground for rejection. However, in March, 1918, muscle paralysis and similar defects of the extremities which interfered with not more than 25 per cent of normal functioning could be accepted for general military service.

64. *Defective physical development.*—This somewhat vague term was applied to about one-third of 1 per cent of registrants. It probably included a certain proportion of those defective in height, weight, and chest measurement. It was no doubt applied also to certain deformities properly placed under some of the categories enumerated above. It was, as the consideration of the various constituent elements will show, an important cause of rejection.

65. *Deficient chest measurement.*—The original standards issued at the beginning of the draft required that the man should be well developed and muscular. Later, in February, 1918, local boards were told to refer registrants with defective chest measurement to the medical advisory boards, and the medical advisory boards were told to inquire particularly into the failure for registrants to meet the normal requirements for chest expansion. However, the requirements of chest circumference in relation to height were very definitely set forth and the minimum permissible variations from the standard were clearly given. No doubt the great majority of persons falling outside those limits were actually rejected.

Normal chest circumference at expiration was stated to vary from 31 inches for persons 60 inches tall to 38½ inches for persons 78 inches tall. A variation from 1 to 1½ inches below this standard (depending upon stature) was permitted, provided the applicant “is active, has firm muscles, and is evidently vigorous and healthy.”

66, 67. *Underweight.*—The relation of normal weight to height is given in Table 1, taken from Physical Examination Standards, No.

3. The table gives also the standard chest circumference at expiration and the permitted minimum weight and chest expiration.

A. Standard accepted measurements.			B. Variations from standard shown in column A permissible when applicant is active, has firm muscles, and is evidently vigorous and healthy.		
Height.	Weight.	Chest measurement at expiration.	Height.	Weight.	Chest measurement at expiration.
<i>Inches.</i>	<i>Pounds.</i>	<i>Inches.</i>	<i>Inches.</i>	<i>Pounds.</i>	<i>Inches.</i>
61	118	31	61	110	30
62	120	31	62	110	30
63	124	31	63	112	30
64	128	32	64	113	30
65	130	32	65	114	30
66	132	32½	66	116	30½
67	134	33	67	118	30½
68	141	33½	68	121	30½
69	148	33½	69	124	31
70	155	34	70	128	31½
71	162	34½	71	133	31½
72	169	34½	72	138	32½
73	176	35½	73	143	32½
74	183	36½	74	148	33½
75	190	36½	75	155	34½
76	197	37½	76	161	34½
77	204	37½	77	168	35½
78	211	38½	78	175	35½

68. *Malnutrition*.—This was a matter which was left to the judgment of the examiners. It was hardly the cause for rejection, since it is remediable in most cases.

69. *Anorchism, monorchism, cryptorchidism*.—These terms are applied with more or less overlapping to conditions that are usually due to incompleteness of sex development indicated by failure of one or both testicles to descend. Such failure is very apt to be associated with hernia and so clearly implies a physical weakness.

Prewar standards permitted acceptance of recruits with "loss or atrophy of one testicle, the other being normal," unless the undescended testicle lies in the inguinal canal or is associated with inguinal hernia. The first instructions for local boards prescribed rejection of undescended testicle, but in November local boards were instructed to accept this condition.

Physical Examination Standards No. 6 of June, 1918, prescribed the unconditional acceptance of "undescended testicle which lies within the abdominal cavity" and unconditional rejection of "undescended testis which lies within the inguinal ring." Thus it is seen that there was a change of policy in respect to this defect subsequent to the issuing of the first standards.

70. *Cleft palate and harelip*.—These associated defects which frequently interfere with speech and cause a blemish of the face, were, in the earliest regulations, regarded as a cause of rejection in so far as they are responsible for fissures or perforations of the hard palate and interfere with mastication and speech. However, in June, 1918, perforations of the hard palate and moderate deformities of the structures of the mouth were ordered conditionally accepted in the remediable group, but irremediable deformities were ground for unconditional rejection.



71. *Bullet or other recent wounds.*—This condition was rarely specifically referred to in the Physical Examination Standards. Whether or not it was ground for rejection depended upon the degree of deformity and disfunctioning which resulted.

### C. TOTAL DISEASES AND DEFECTS IN THE POPULATION STUDIED: CLASSIFIED BY GROUPS.

#### I. CLASSIFICATION BY GROUPS.

In the 2,510,791 men considered in this study there were recorded 1,533,937 physical defects (sometimes more than one to a man). Of these 350,421 were recorded for the first million who came to camp, or 35.25 per cent, only one defect being tabulated; 484,798 were recorded for the second million men, or 50.11 per cent, or altogether 835,219, or 42.58 per cent. Also in 549,099 men rejected at local boards in the United States there were noted 698,718 defects, or 18.56 per cent of the total number of men examined. The recruits who were examined at mobilization camps were classified into four groups. (Table 1a.)

Group A included men accepted for general military service either with or without defect; group B, men accepted as qualified for general military service when cured of ——— (defects named); group C, men qualified for special or limited military service, as ——— (occupation specified); group D, men totally unfit physical or mentally for military service by reason of ——— (defect named). Groups A and D, or their equivalent, were recognized from the beginning.

The selective-service regulations, dated November 8, 1917, which became effective about December 15, 1917, recognized (sec. 88) "Men physically disqualified for general military service, but able to do special or limited military service," and it was stated:

In each case in which the registrant is found to be physically disqualified for general military service the examining physician will ascertain the nature of the trades, professions, or other civil occupations of the registrant, and will report to the local board, in the proper space on form for physical examination, whether, in his judgment, the registrant is physically capable of rendering special or limited military service in such trade, profession, or occupation, or in a similar capacity.

The same selective-service regulations provided further (sec. 187, "Temporary defects"):

Temporary effects of acute disease of or an injury are not to be regarded as justifying a finding that the person so affected is physically deficient and not physically qualified for military service should such conditions justify a reasonable delay in completing the physical examination in order that an opportunity for recovery may be afforded.

No special space was provided in the physical examination report (Form 1010, P. M. G. O.) for noting cases that fell in this "remediable" group. The regulations of section 187 were modified in selective-service regulations, Changes, No. 3, P. M. G. O., dated January 28, 1918. The changes consisted of defining more specifically the treatment to be accorded to registrants having temporary defects.

In Special Regulations, No. 65, of the War Department, which became effective in June, 1918, the four groups, A, B, C, D, were as-

signed special designations and definitions. Group B is defined as follows:

Registrants who on examination are found to suffer from "remediable" defects, and who fall within the proper standards, may be accepted for general military service in the deferred "remediable" group.

Finally, in the latter part of the summer of 1918, there was issued to local boards a revised Form 1010, in which there is space provided for the classification of a registrant in either of the four groups, A, B, C, or D. One consequence of this delayed definition of group B is that the total number of persons classified in this group on Form 1010 is very small.

The total classification of the 1,533,937 defects was as follows (fig. 2):

	Number.	Per cent.
Group A .....	606,187	39.5
Group B .....	608	.1
Group C .....	59,722	3.9
Group D .....	168,702	11.0
Class Vg .....	698,718	45.5
Total .....	1,533,937	100.0

## II. THE PRINCIPAL GROUPS OF DEFECTS AND DISEASES IN THE MILITARY POPULATION.

### a. PHYSICAL REQUIREMENTS FOR GENERAL MILITARY SERVICE PROPOSED.

The fighting man has to meet special ideals of physical fitness corresponding to the special service he has to perform. First, the fighting soldier has to move great distances over the ground on his feet, carrying a load of about 40 pounds. He has to be capable of highly strenuous physical activity during the periods of training and of fighting. These included extensive hikes, constant drill, digging trenches, throwing hand grenades, bayonet practice, and the like. During actual warfare he is subjected to extremes of conditions, not only of physical activity but of shocks that are racking to the sense organs and to the sensibilities. Especially are extremes in mental states aroused. The military man must, therefore, have sound feet and a body capable of standing great mechanical stress and one in which the sense organs, the central nervous system, and organs of emotional control are as active as possible.

The defects and diseases as sorted out by the physicians of local boards and by medical officers at the cantonments may be considered under the following general heads:

1. The mechanical defects, including first of all those of the feet; and, secondly, hernia and its relating weaknesses.
2. Defects of the ear.
3. Defective vision.
4. Defects of development.
5. The infective diseases of the venereal group.
6. Tuberculosis.
7. Tonsillitis.
8. Disorders of the mental group.

9. Defects of bones and joints.
10. Teeth defects.
11. Defects of the heart and the associated organs.
12. Defects in the walls of the veins.

After considering these in order there will be taken up the less common diseases (found in fewer than 1 per cent of the population), of which the number of kinds is very great. (Fig. 1.)

#### b. GROUP OF MECHANICAL DEFECTS.

1. *Foot defects.*—These are by far the most important of all defects found in the population of military age. Of flat foot alone 301,146 cases were recorded, which is approximately 12 per cent of the full population here considered. Flat foot was detected usually not merely or primarily by the form of the foot, but by a bad position in walking, combined with some discomfort in functioning. Similar grades of flat foot which gave no history of discomfort were sometimes not noted. Of those that were noted 264,287 were not considered sufficient to prevent general military service; 9,036 were considered of a degree that would permit of a limited military service; 22 men were placed in the "remediable" group; 12,285 were rejected at mobilization camps, and 15,516 were rejected by their local boards and never sent to camp. Altogether 27,801 men—that is, about 1 per cent of the men examined—were rejected for a grade of flat foot that was obviously incompatible with any sort of military service. In addition to flat foot there were a number of other foot defects which were likewise the cause of many rejections. Pronated foot was noted in 17,373 men and was the cause of the rejection of 3,393 of them. Hollow foot (*pes cavus*), depending upon an abnormal contracted condition of the ligaments, was recorded of 3,435 men, of whom nearly a quarter (829) was rejected for any military service. Finally 7,652 men were recorded as having a foot deformity without specifications of type, and of those nearly all (6,618) were rejected. Altogether, important foot defects were noted in about 15 per cent of the men examined, but were the cause for rejection of only 5 per cent (?).

It seems appalling that so large a number of young men at the very acme of physical development should be found with defects of the foot. The cause is partly biological and partly social. On the biological side it is an evidence of the incompleteness with which the bones, ligaments, and muscles of the foot of man are adjusted to man's upright position.

On the social side we find that the human foot has been much abused by the artificial alterations in form that it has undergone by being cramped in shoes. Evidence for this will be presented when the relative frequency of foot defects in urban and rural districts is discussed. The social factor has been responsible for a great difference in the proportionate defects in urban and rural districts.

2. *Hernia, and inguinal rings.*—This is the second largest group of defects. Of the first 2,500,000 men examined, not less than 57,372 showed well-marked hernia, and 52,292 in addition showed enlargement of the inguinal rings. Of the former group, 3,574, or about two-thirds, were rejected for any military service. Of the latter



group, 1,831 were rejected. Of the 57,372 cases of frank hernia, 18,636, or 32.48 per cent, were accepted, nevertheless, for general military service; 286 were designated for operation, and 2,709 were classified in group C, for special service. The vast majority of cases of enlargement of inguinal rings was regarded as fit for general military service. Altogether hernia and enlargement of inguinal rings were found in about 4 per cent of the population of military age. The significance of so large a proportion of defects belonging to this category is partly biological and partly social.

On the biological side the frequency of hernia is evidence of man's incomplete adjustment to the upright position. The viscera which in quadrupeds are largely supported by the abdominal muscles and fascia here come to rest chiefly on the pelvis and to press upon the openings in the wall of this basin.

On the social side, man is subjected both in agricultural and commercial life to great stresses, which tend to force the viscera through the weakest point in the body wall. The stresses, then, that man is subjected to in industrial life merely reveal the inherent weaknesses which he carries, due to the course of evolution.

3. *Organic diseases and defects of the heart.*—This group, which includes valvular disease of the heart, cardiac hypertrophy, cardiac dilatation, myocarditis, myocardial insufficiency, and endocarditis, is second in importance only to the great group of mechanical defects. Valvular disease of the heart was recorded in over 88,000 cases, cardiac hypertrophy in 11,389 more, myocarditis in 1,792, and endocarditis in 2,782. Altogether the group contains over 120,000 cases, or about 5 per cent of the men examined. Of the one hundred and twenty thousand odd cases of organic defects of the heart, a large proportion properly enough was rejected for military service of any sort; namely, 90 per cent. There were, however, accepted for general military service, 2,872 cases of mitral insufficiency and 300 cases of mitral stenosis. One thousand one hundred and fifty cases of mitral insufficiency were placed in the limited-service group. Practically no cases were regarded as "remediable."

4. *Defective vision and blindness.*—The third great group of defects found in the population of military age is that of the eyes. Of defective vision there were over 88,000 cases, or nearly 3 per hundred men examined, and of these about 8 per cent were rejected. Of the specific error of refraction noted, myopia (or shortsightedness) was by far the most common. The peculiar distribution of myopia in the country indicates that it is more common in certain races than in others. Astigmatism is found in about 0.12 per cent of the population. Hyperopia in 0.07 per cent. Of the men examined, 14,879 were found to be blind in one eye and 4,831 others had the globe removed. There were 1,811 blind in both eyes. Thus we have a total of over 20,000 with complete blindness in one or both eyes, or nearly eight-tenths of 1 per cent.

The cause of the fact that nearly 4 per cent of the population of military age examined showed serious eye defects is probably largely social. Modern life with its methods of book education and training for clerical positions undoubtedly brings highly abnormal demands upon the use of the eyes for near work. There is, however, abundant reason for concluding that this defect is greater in some races than in others, either because of the difference in the care of the eyes or in

the constitution of the eye. It must be remembered that the eye is a very complicated organ, and it would not be strange if in development errors should frequently occur. In the lower animals the defects in the development of the eye tend to be early eliminated in the struggle for existence, but in man the imperfect eyes are corrected and the handicap of the defects in large measure disappears.

5. *Defective physical development.*—Defective physical development in its broader sense includes also defective chest measurement, underweight, and underheight. Of these different items, underweight is by far the most important and was a ground for exclusion of nearly 73,000 men, or about 13 per cent of all examined. About 8,000 were found to be underheight. About 2,383 had deficient chest measurement and 7,315 others had some other sort of defective physical development. The limits of weight and height were clearly stated in the standards of physical examinations, and it was prescribed that persons whose weight and height were under the limit should be rejected for military service unless, in the case of weight, it was reasonable to suppose that the weight would improve under military service. We find that of the 73,000 cases of underweight 66,167 were rejected; 2,794 were, nevertheless, accepted for general military service and 4,003 for special or limited military service. Only 8 were, rather curiously, placed in the "remediable" group. Of the 8,004 men under height, 7,694 were rejected. A few (148) were, nevertheless, accepted for general military service and about the same number (162) were placed in the limited-service group.

The reason for so large an amount of defective development is primarily because acceptable limits were arbitrarily drawn to meet the demands of exceptional strength and robustness required in military service. The results do not imply that this rejected  $3\frac{1}{2}$  per cent were physically unfit to play a rôle in society, but merely that they were not adapted to carry the 40 pounds upon the back and to do the other strenuous work required in combatant warfare.

In view of the large number of men rejected because of underweight and underheight, the question is raised, Were the lower limits of acceptable height and weight placed too high? An answer to this inquiry can only be made when the causes of discharge for disability have been completely compiled.

It may be remarked in passing that the military authorities seemed at the outset not to be fully cognizant of the great changes in the population of young men of the United States, due to recent immigration into this country of representatives of races of southeastern Europe, many of whom of normal constitution are below the lower limit of stature and weight prescribed in the prewar standards of physical examination.

Inferences concerning the extent to which physical development of recruits is due to pathological, racial, or to social conditions may be learned by a study of the charts showing the distributions of the defects of this group in the different States.

6. *Veneral diseases.*—Three venereal diseases are recognized in the accompanying tables. Of these, gonococcus infection is far and away the most frequent. This disease was recorded 67,724 times, or in about  $2\frac{1}{2}$  per cent of the men examined. Syphilis was recorded 19,114 times and chancroid 2,555 times. Gonococcus infection was the ground for rejection in 4,032 cases. The vast majority of cases



were, in accordance with regulations, accepted for general military service. Only 834 found infected at the draft examination were placed in group C.

In the case of syphilis, however, about 40 per cent of the cases were rejected for military service. This high proportion of rejections is due to the fact that at the beginning of the draft local boards were instructed to reject syphilis when discernible by inspection and physical examination, but by December, 1917, it was ordered to accept syphilis except when permanently incapacitating. While the total amount of syphilis recorded is not great (amounting to less than 1 per cent), it must be recognized that the methods of diagnosis were not fully adequate for the detection of this disease. It seems probable that only the most obvious cases were recorded. In the case of gonococcus infection, however, recent acute infections were sufficiently obvious and the methods employed at the time of physical examination were usually sufficient to detect even chronic cases. The total amount of venereal diseases found (about 3.5 per cent) is much less than many of the propagandists in the field of sex hygiene have asserted to be present in our population of young unmarried males.

7. *Tuberculosis*.—Of this disease there were 55,631 frank cases recorded, and 17,119 cases of suspected tuberculosis or weak lungs. In addition, there were recorded 9,312 cases of tuberculosis of other organs than the lungs, making a total of 82,000 individuals in whom tuberculosis was in more or less active condition. Of these cases, in accordance with the regulations, most were rejected for any military service. However, there were 840 cases diagnosed as pulmonary tuberculosis that were accepted for general military service and 388 cases accepted for special or limited military service.

Tuberculosis has long been recognized as the leading infectious disease of man as well as of mammals. Doubtless the decision of military authority to reject cases of tuberculosis was founded on extensive experience and was fully justified.

8. *Diseases and defects of the tonsils*.—The complicated, thin-walled tonsils seem to be a weak point in man's organism, permitting the formation of foci of infection from which parasitic microorganisms enter the blood stream. Inflamed hypertrophied tonsils were noted in 63,585 of the registrants examined, being  $2\frac{1}{2}$  per cent of all. There were 1,728 other cases of diseased tonsils recorded. Few of these cases were, however, cause of rejection; however, 2,556 men were rejected for hypertrophic tonsillitis.

9. *Mental group*.—Some form of mental alienation was found in about 50,000 of the group of men here considered. Of the different types of mental alienation, mental deficiency was by far the most common. There are 39,787 persons of whom this condition was recorded. There were 2,112 cases of dementia precox, and nearly 1,500 cases of psychoneuroses. Of manic depressive psychosis only 586 cases were found.

Diseases of the mental group are all grounds for rejection, and over 96 per cent (?) of those found with mental diseases were rejected; 390 cases were accepted of a grade of mental deficiency sufficient to be detected by the methods employed by local boards and that of physical examination in the cantonments.

The number of mental defects given in this table by no means includes all that were found in the Army. The additional psychologi-



cal tests discovered many more; however, mental deficiency is a relative condition and the per cent in the population will depend upon the ideals of mental sufficiency for military service adopted by the examiners.

It will be observed that the prevailing forms of mental alienation found were of the constitutional types, such as mental deficiency, dementia precox, manic depressive psychosis, and psychoneuroses. There were only 252 cases of general paralysis of the insane, a condition that is consequent upon syphilitic infection. If one insists on an answer to the inquiry, Why there should be so many cases of mental deficiency and mental diseases in the population of military age? it can only be replied that this is a fair index of the constitution of the population of the United States, as it is composed of those who have migrated to its shores from Europe, or their descendants.

10. *Diseases and defects of the bones and joints.*—Military men must have healthy, well-formed bones and joints. In the population here considered large numbers were found defective in these respects. Ankylosis of the joints was found in over 18,000 cases; malunion or nonunion of fractures was found in over 12,000 cases; short lower extremity in 8,900 cases; and the loss of whole or part of the extremity in 14,000 more. Altogether over 45,000 men, or 2 per cent of all, were found seriously defective in the bones and joints, particularly in the appendages, and on account of these defects a great majority had to be rejected, causing a loss to the Army of 42,874<sup>1</sup> men. There were, however, 1,164 cases of malunion of fracture of arms and 1,776 cases of malunion of fracture of the legs which were accepted for general military service, and 4,846 of ankylosis of the joints. In all of these categories still fewer were classified in group C.

The cause for so large a burden of defects in the bones and joints is, on one hand, the liability to accident to which young men are subjected, often in a locality where good surgical attendance can not be secured. In a number of cases an antecedent infection, which had become localized in a joint, had become the seat of inflammations which led to ankylosis.

11. *Diseases and defects of the teeth.*—The physical examination requirements prescribed certain conditions to be met in the dental formula. In our population there are 37,131 persons whose teeth are so defective or deficient as to warrant a notation to that effect, and of these, 27,015 were rejected on account of their poor teeth. It is evident that only a small proportion of persons having some slight defect of the teeth were so recorded on the records. The 27,015 rejections for teeth defects concern about 1 per cent of the population examined, and tables show the distribution of these defects in the different sections and races and in urban and rural districts. It appears to be plain that the resistance of the teeth to dental caries varies for race. The 27,015 represent largely those whose teeth lacked resistance to dental caries or were insufficiently cared for.

12. *Diseases and defects of the organs of hearing.*—The military man must be able to hear commands, and in time of warfare a keen sense of ear discrimination is useful, since by this means gas shells are differentiated from high explosives while still moving through the air. About 39,000 men were found with defects and diseases of the

ear, of sufficient degree to justify annotation, and a great majority of these were rejected for this disability. There were 21,579 found with a marked inflammation of the middle ear, and 2,029 more with a perforated ear drum; evidence of an infection of the middle ear. Of these, in accordance with military regulations, nearly all but a few hundred were rejected. There were 15,076 persons stated to have defective hearing, and in addition there were 3,363 deaf and 2,410 deaf mutes, so that altogether there were nearly 19,000 cases of clearly marked ear defects or disease. Of these some 600 were placed in class C, and about the same number were, despite their defects, accepted for general military service.

13. *Diseases and defects of the veins.*—Hemorrhoids or piles, varicocele, and varicose veins. Of these three defects there were found in the population under consideration 23,655 cases. Of these, varicose veins constitute by far the largest number—11,396. Varicocele comes next with 8,957 cases, and hemorrhoids last with 3,302. Of the cases of varicose veins noted, 9,026 were of sufficient degree to warrant rejection, about one-third of the cases of varicocele warranted rejection and one-half of the hemorrhoid cases. As many as 1,769 cases of varicose veins were accepted for general military service, 5,613 cases of varicocele, and 1,361 cases of hemorrhoids. Evidently varicocele is regarded as interfering relatively slightly with the soldier's ability to walk and carry burdens.

The reason for so many cases of defective veins is partly biological and partly pathological. On the biological side there is reason for believing that there is often a disharmony between the height of the vascular column that has to be carried and the strength of the walls that have to resist its pressure, for tall men are more afflicted with varicose veins than short men. On the pathological side there is an evidence that vascular degeneration is a consequence of certain infections.

It now remains to consider some of the separate diseases and defects which occur less frequently and that have points of special interest.

14. *Pellagra.*—There are only 252 cases of pellagra so diagnosed in the records of over two and one-half million men. When found it was nearly always regarded as ground for rejection.

15. *Curvature of the spine.*—Of the general diseases curvature of the spine was one of the most striking. This condition was found in 15,231 cases, and of these over 80 per cent were rejected, but in over 2,000 cases the degree was so slight as not to prevent acceptance for general military service. There are, however, 3,300 cases of deformities of the spine of which no details are given, and it is probable that some of these belong to the present category. However, they were nearly all recorded as grave defects so that of the 3,300 only 102 were accepted for either general or special military service.

16. *Tumors.*—The population that we are now considering has hardly reached an age to show many considerable tumors. However, 1,702 cases of malignant tumors were described, of which 985 were grounds of rejection, 670 did not interfere with acceptance, and 43 were accepted for a special or limited military service.

17. *Arthritis.*—It has already been pointed out that ankylosis of the joints is one of the common defects of men of military age. Such



ankylosis is commonly preceded by arthritis, and so it is not surprising that the medical examiners discovered and recorded 6,354 cases of this disease. Of these 5,538, or nearly 90 per cent, were of a degree warranting rejection, and 519 were of so slight a degree as to warrant sending the afflicted men to camp as qualified for general military service.

18. *Goiter*.—Of both simple and exophthalmic goiter a surprisingly large amount was found. Of simple goiter there were 11,971 cases recorded, and of exophthalmic goiter 8,647 cases, or, altogether, over 20,000 cases. This is a little less than 1 per cent of the population examined. Of the cases of simple goiter over one-fourth (3,100) were rejected for all military service, primarily because the neck was so large as to interfere with the wearing of the military uniform. The remainder were mostly accepted for general military service, but there were 458 who were classified in group C. In the case of the much more serious exophthalmic goiter, of the 8,647 cases found, 7,985 were rejected for all military service, or 93 per cent. There were, however, 375 such defectives who were regarded as qualified for general military service. That any should have been accepted is rather remarkable, since the lowest standard required rejection. However, it is to be stated that 100 or more cases were examined by local boards before orders were issued to reject registrants found with this disease.

19. *Obesity*.—This condition, which probably is associated with the malfunctioning of some of the secreting glands, was found in 4,967 cases in a degree warranting record. These are cases of extreme overweight. Of these, 4,211 were rejected and 488 taken into the Army for general military service, with the expectation, no doubt, that Army life would improve their physical condition.

20. *Alcoholism and drug addiction*.—Of the first of these conditions only 853 cases are recorded; of the latter, 1,488. It is very striking that more drug addicts should be discovered than alcoholics, but it is to be considered that, in the case of young men, the telltale evidence of drug addiction is more striking than that of alcoholism. Of the cases of alcoholism, 758 were rejected, or 89 per cent, and of the drug addicts 1,420, or 85 per cent of the latter. Of the drug addicts, 54 were taken into the combatant Army.

21. *Other general diseases*.—Of the other general diseases found, certain are of interest, not because of their frequency but because of their rarity. Thus there were recorded 67 cases of cretinism and myxedema, 14 cases Addison's disease, 7 of giantism, 48 of acromegaly, 19 of leukemia, 55 of Hodgkin's disease, 82 of hemophilia, 24 of purpura. Nearly all of these diseases led to rejection of the men concerned.

22. *Diseases of the nervous system, occurring infrequently*.—Of the diseases not already referred to that fall to this category, the various paralyses are most striking. Thus we have of monoplegia 3,718 cases, hemiplegia or apoplexy 1,856, paraplegia 1,164, facial paralysis 277. Of these minor paralyses (indicative of nervous defects which would become exaggerated under the provocation of combatant service) many were rejected. There were, however, accepted for general military service, 28 cases of monoplegia, 26 of facial paralysis, 9 of hemiplegia, and 8 of paraplegia. Of epilepsy, 14,195



cases were recorded, and of these all but 119 were rejected for any military service. Of the great American nervous disease called neurasthenia, 1,494 cases were noted, and of these all but 99 were rejected for any military service. Neurocirculatory asthenia (or disordered action of the heart) was noted in 895 cases, of which unfortunately 138 were accepted for general military service. Subsequent experience has indicated that in time of warfare it proves to be a condition that is highly disabling. Of choreas there were 593 cases found, of which all but 11 were rejected. Defective speech was found in 2,986 cases, all but about 200 of whom were rejected.

Of the nervous diseases of interest because of comparative rareness may be mentioned multiplesclerosis and enurosis, which were recorded 278 times; Huntington's chorea, 2 times; mutism, 339 times. Of tabes dorsalis (or locomotor ataxia) there were 539 cases recorded, of which all but six were rejected. Four qualified for general military service and two for limited military service.

23. *Defects and diseases of the eyes occurring less frequently.*—The most noteworthy of the less common diseases of the eyes is trachoma, of which 3,776 cases were found, and of these all but 277 were rejected. This remainder mostly qualified for general military service. Of amblyopia (probably used largely for defective vision) 2,947 cases were recorded, of which all but 593 were rejected. The condition of amaurosis was found in 119 cases, all rejected except 11. Strabismus, or cross-eye, was found in 2,885 cases, of which 2,063 were rejected and 694 qualified for general military service. Cataract was present in 2,040 cases, of which all but 157 were rejected. Choroiditis was found in 943 cases, and all but 45 were rejected.

Of the diseases of the eye that are important because of their comparative rarity, the following may be mentioned: Of glaucoma 174 cases were found, of which only about half (97) were rejected. Color blindness was detected in 37 cases, although the test for color blindness was rarely made either by local boards or at mobilization camps. Nystagmus was found in marked degree in 854 cases, of which all but 47 were rejected. Retinitis was found in 339 cases, mostly rejected. Of leucoma 315 cases appear, of which 247 were rejected. There were also 1,103 cases of pterygium recorded, of whom most qualified.

24. *Diseases of the nasal fossae, occurring less frequently.*—Among the most common diseases of the nasal fossae was sinusitis, recorded in 1,440 cases. This disease doubtless occurred in vastly more cases, but the means used for detecting it by local boards and at mobilization camps were entirely inadequate. Rhinitis, hypertrophic, was recorded 1,212 times, and of these 422 cases were rejected. It is probable that some of these cases were associated with sinusitis, as were also many of the cases of Ozena and nasal polypus. The defect of the nasal septum was recorded 604 times of a degree such that it led to the rejection in 369 of the cases.

25. *Functional heart disorders.*—Functional heart disorders are of first importance in military operations. Yet they are difficult to detect, and the number of cases recorded is small, despite the frequency with which these defects occur in the population. There were 1,967 cases of functional disorders not otherwise described, 1,758 cardiac arrhythmias, and 1,221 cases of cardiac murmurs, not organic,

making a total of 4,946 functional cardiac disorders, affecting about 2 per cent of the population examined. Of each of these groups about two-thirds were rejected for any military service. Tachycardia was recorded in 12,251 cases, so this proved to be one of the most important, numerically, of the functional heart disorders, and wisely enough nearly 90 per cent of the cases recorded by the medical examiners were rejected. Of the less common forms, Bradycardia was recorded 57 times, heart block 33 times, and aneurisms 190 times.

26. *Respiratory diseases*.—Respiratory diseases were found in great numbers. Asthma was recorded in 6,759 cases, of which 6,488 were rejected. Hay fever was recorded in 39 cases, of which but 4 were rejected. Bronchitis and pleurisy were very common and led to considerable rejections.

Of the minor defects and diseases of the digestive system there are a number of considerable interest. Thus, there were 925 cases of pyorrhea alveolaris found, of which more than half were rejected. Ulcer of the stomach was accepted in 825 cases and rejected in 802 cases. Intestinal obstruction was diagnosed in 96 cases, of which all but 6 were rejected. Intestinal parasites were found in 127 cases, of which 78 were rejected. Appendicitis was found at the time of examination in 420 cases, of which 356 were rejected. Fistula in ano proved to be a fairly common defect being found, namely, in 1,226 cases; mostly rejected. Fecal fistula was found in 58 cases, of which but 3 were rejected. Cirrhosis of the liver was found in only 88 cases. Defects of the liver, gall bladder and ducts were recorded in 442 cases, and visceroptosis in 24 cases. Of the last group all but 1 were rejected.

Of genito-urinary defects about 4,300 cases of disease of the kidney were recorded, and these led largely to rejection. Hydrocele was the most important of the other defects, this having been recorded in 3,133 cases, of which 949 cases were rejected. There were 206 cases of urinary fistula recorded, mostly rejected. A few hundred cases of diseases of the urethra and prostate were recorded.

27. *Diseases of the skin*.—The most common group of rejections for skin disease was that of scars which, when disfiguring, painful, or disabling, were the cause of rejection. Of large scars there were over 3,000 noted, and of these something like 85 per cent were rejected.

Defects and diseases of the nails were found in 245 cases, and ectoparasites were mentioned in 185 cases. There were 177 cases of bromioidrosis found and 22 of Raynaud's disease. Of congenital malformations, cryptorchidism, undescended testicle, was the most common. There were 6,964 cases described and 3,658 of these were qualified for general military service; 3,050 were rejected for all military service, probably owing to the fact that the testicle lay in the inguinal canal. Hypospadias was recorded in 968 cases; in 228 of these it was of such degree as to warrant rejection; 128 cases were recorded as gynandrisms, of which all but 7 were rejected.

28. *Cleft palate and harelip*.—Of cleft palate and harelip, 1,183 and 283 cases, respectively, were recorded, and these were mostly rejected. There were 84 cases of albinism detected and 71 rejected. Bullet or other wounds accounted for 1,070 rejections out of a total of 1,391 cases recorded, and finally 12,799 persons were recorded as

unfit for military service on account of general unfitness of which, nevertheless, 74 were accepted as qualified for general military service, and 230 for special or limited service.

A further study of the table of defects and the way in which they were grouped by the examiners will reveal many points of interest in respect to the incidence of the various disorders and defects of the American population and the different degrees which they exhibited; or which determined their proper classification in the attempt to make every man who is capable of performing military service of any kind able to play his part in the military organization.

#### D. COMPARATIVE INCIDENCE OF THE DIFFERENT DISEASES IN THE SEVERAL STATES.

##### I. THE INCIDENCE AND DISTRIBUTION OF THE SEVERAL DISEASES.

Tables 1 to 94 and Plates III to XL give the statistics concerning the number of cases of various important diseases and defects found in the population of military age. The ratio of these cases in 1,000 men examined from each State is also given. It is proposed to discuss these tables of State incidence in this chapter.

1-4. *General rates.*—(See Tables 1, 2, 3, and 4.)

5. *Pellagra.*—This is a disease that is very easy to detect, owing to the skin lesions, although somewhat difficult to diagnose with certainty owing to the possibility of confusing it in early stages with other inflammations and ulcerations of the skin. When accompanied by intestinal disorders and with the characteristic history of seasonal recurrence, the diagnosis is made more certain. Concerning the cause of the disease, there is still uncertainty. It is, as the graph, Plate XIX, figure 4, shows, prevailing a disease of the Southern States.

Table 5 shows that the disease was detected in nearly 1 per mille of the men examined in the State of Mississippi. In Arkansas the proportion was something more than half the number in Mississippi; and in Florida, South Carolina, and Tennessee the ratio of detected pellagra was 0.46 per thousand. Then follow the other Gulf States, Oklahoma and Kentucky. In the remaining States, the number of cases detected is so small that the ratios are without significance. Four cases were found in Virginia, three in Iowa, and one each in New Mexico, Rhode Island, Kansas, Minnesota, and Ohio—scattering cases in which the possibility of an immigration of the case from another State must not be overlooked.

In view of the fact that pellagra is about as common in colored persons as in white of the same social status and in view of the fact that the sanitary conditions under which the former live are on the whole inferior to those under which the white people live, it seems not improbable that the high proportion of pellagra found in the State of Mississippi is to be associated with the fact that this State contains the largest proportion of colored (and hence the lowest social status on the whole) of any State of the Union. It may not, however, for one moment be inferred that the large amount of pellagra in the Southern States is due merely to the greater incidence in those States of colored persons, because pellagra is no respecter of color.



TABLE 5.—Grand total for pellagra, with ratioo per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Mississippi.....	33	.88	Illinois.....		
Arkansas.....	22	.52	Indiana.....		
Florida.....	11	.46	Maine.....		
South Carolina.....	18	.46	Maryland.....		
Tennessee.....	28	.46	Massachusetts.....		
Alabama.....	22	.42	Michigan.....		
Georgia.....	25	.39	Missouri.....		
Oklahoma.....	19	.31	Montana.....		
Louisiana.....	14	.27	Nebraska.....		
North Carolina.....	14	.25	Nevada.....		
Texas.....	21	.18	New Hampshire.....		
Kentucky.....	9	.14	New Jersey.....		
New Mexico.....	1	.10	New York.....		
Rhode Island.....	1	.07	North Dakota.....		
Virginia.....	4	.07	Oregon.....		
Iowa.....	3	.04	Pennsylvania.....		
Kansas.....	1	.03	South Dakota.....		
Minnesota.....	1	.01	Utah.....		
Ohio.....	1	.01	Vermont.....		
Alaska.....			Washington.....		
Arizona.....			West Virginia.....		
California.....			Wisconsin.....		
Colorado.....			Wyoming.....		
Connecticut.....			State not specified.....	4	.04
Delaware.....					
District of Columbia.....					
Idaho.....			Total.....	252	.09

6-7. *Total tuberculosis.*—Tuberculosis, especially of the lungs, was carefully looked for by medical examiners at local boards and at camps. No doubt the skill of the examiners in detecting cases, especially incipient cases, varied with their experience. The disease, however, is so ubiquitous that it may be assumed that all medical examiners were acquainted with its signs as detected by the stethoscope. As the graph (Pl. XVIII, figs. 1 and 2) shows, the greatest incidence of this disease is in the States of Arizona, New Mexico, Colorado, and California (exceeding 5 per cent). Now, these four States are just those of greatest resort of persons with tuberculosis, and the conclusion seems justified that the reason for the large proportion of tuberculosis found in these States is, first, that many of the registrants had gone to these States because they had active tuberculosis, or, secondly, that they belonged to families that had moved to these States on account of this disability and that they were revealing the family diatheses. Considering particularly the distribution of pulmonary tuberculosis and suspected tuberculosis (Table 2), we find that, apart from the Southwest, the greatest incidence of this disease is in Maryland, Rhode Island, Kentucky, North Carolina, Maine, Virginia, Tennessee, and Connecticut (3 to 5 per cent). This collection of States seems at first sight somewhat heterogeneous, but on reflection it will be seen that it falls into two groups—first, the New England States of Maine, Rhode Island, and Connecticut, and secondly, the group of eastern States of middle latitude, namely, Maryland, Virginia, North Carolina, Kentucky, and Tennessee. The high incidence of tuberculosis in southern New England is probably associated with the presence in these manufacturing States of a large number of Irish; also the attractions of Maine and New Hampshire as health resorts; perhaps, also, with other recent immigrants who it is generally believed suffer severely from tuberculosis in their

adopted country. Similarly, the high incidence of tuberculosis in the States of middle latitude is probably to be ascribed, in part, to the resort of the tuberculous to the Appalachian Mountains. It will be noted that the States of the Northwest are characterized by a small amount of pulmonary tuberculosis. The South Atlantic and Gulf States vary in the amount of tuberculosis found. Thus, Mississippi stands relatively high in this group. This is probably due to the large percentage of negroes coming from this State, for this race is known to be exceptionally susceptible. On the other hand, Florida and South Carolina have a relatively low rate, because they have the smallest population of mulattoes. (Negro population, United States Census 1790-1915, p. 218.) Looked at broadly, there are three tuberculosis areas in the United States: (1) New England and New York States—the centers of the Irish and great manufacturing centers; (2) The Southeast, the areas of greatest density of the (susceptible) mulatto<sup>1</sup> population; (3) the Southwest, the greatest "health resort" for the tuberculous.

TABLE 6.—Grand total for tuberculosis, pulmonary plus suspected tuberculosis, with ratio per 1,000 men; total rejections,  $D+Vg$ .

State.	Number of cases.	Ratio per 1,000 men.	State.	Number of cases.	Ratio per 1,000 men.
Arizona.....	685	63.61	Arkansas.....	1,058	19.50
New Mexico.....	822	60.87	Pennsylvania.....	4,516	19.47
Colorado.....	1,385	49.32	Wisconsin.....	1,549	19.46
California.....	4,167	43.49	Nevada.....	79	18.96
Rhode Island.....	528	35.14	Alabama.....	1,178	18.85
Maryland.....	1,598	34.57	Ohio.....	3,184	18.57
Alaska.....	53	29.66	District of Columbia.....	242	18.34
Maine.....	643	28.14	South Carolina.....	809	17.78
Kentucky.....	2,224	27.74	Florida.....	531	17.59
Virginia.....	1,735	27.50	Kansas.....	819	17.58
North Carolina.....	1,828	27.06	Oklahoma.....	1,211	16.85
Tennessee.....	1,942	26.97	New Hampshire.....	170	15.45
Louisiana.....	1,584	25.71	Minnesota.....	1,276	15.20
Washington.....	1,021	24.62	South Dakota.....	382	14.94
Vermont.....	228	24.22	West Virginia.....	686	14.93
Connecticut.....	1,106	24.06	Iowa.....	1,202	14.92
New York.....	7,286	23.93	Idaho.....	211	13.82
Missouri.....	2,507	23.71	Utah.....	186	13.02
Mississippi.....	1,004	21.62	Delaware.....	75	12.66
Georgia.....	1,550	21.25	North Dakota.....	259	11.43
Oregon.....	406	21.25	Nebraska.....	419	11.02
Massachusetts.....	2,279	21.01	Montana.....	367	10.88
Texas.....	3,101	20.91	Wyoming.....	91	10.22
Indiana.....	1,831	20.62	State not specified.....	1,049	22.09
Illinois.....	4,355	20.35			
Michigan.....	2,232	19.90			
New Jersey.....	1,736	19.63			
			Total.....	71,385	22.02

<sup>1</sup> Klebs (1909, p. 123) refers to the greater fatality of tuberculosis among mulattoes than among full-blooded negroes. When the mulatto rate is low, as in rural Louisiana, South Carolina, and Georgia, or in Florida, as a whole the mortality from tuberculosis is low. It is in the cities where the mulatto rate is high, such as Boston, New York, Charleston, Nashville, New Orleans, that the death rate is highest.

TABLE 7.—Grand total for tuberculosis, (all) with ratio per 1,000 men; total rejections,  $D+Vg$ .

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Arizona.....	717	66.58	Michigan.....	2,478	22.09
New Mexico.....	858	63.54	Pennsylvania.....	5,122	22.08
Colorado.....	1,502	53.49	Arkansas.....	1,165	21.47
California.....	4,517	47.14	Ohio.....	3,680	21.46
Rhode Island.....	603	40.13	Alabama.....	1,321	21.14
Maryland.....	1,778	38.46	District of Columbia.....	277	20.99
Alaska.....	59	33.02	South Carolina.....	907	19.93
Virginia.....	2,025	32.10	Nevada.....	83	19.92
Kentucky.....	2,534	31.61	Oklahoma.....	1,388	19.31
Maine.....	719	31.47	Kansas.....	895	19.21
Tennessee.....	2,220	30.83	Florida.....	578	19.15
North Carolina.....	2,058	30.47	Minnesota.....	1,546	18.42
Washington.....	1,169	28.19	West Virginia.....	799	17.39
Vermont.....	261	27.72	New Hampshire.....	191	17.36
Connecticut.....	1,270	27.63	Iowa.....	1,382	17.15
Louisiana.....	1,701	27.61	South Dakota.....	434	16.97
New York.....	8,240	27.06	Idaho.....	246	16.11
Missouri.....	2,768	26.18	Utah.....	224	15.68
Massachusetts.....	2,663	24.55	Delaware.....	89	15.02
Georgia.....	1,784	24.46	North Dakota.....	324	14.30
Oregon.....	467	24.44	Montana.....	451	13.37
Indiana.....	2,144	24.15	Nebraska.....	472	12.41
Mississippi.....	1,120	24.12	Wyoming.....	106	11.90
Illinois.....	4,934	23.06	State not specified.....	1,135	23.90
Texas.....	3,416	23.03			
Wisconsin.....	1,812	22.76			
New Jersey.....	1,969	22.26	Total.....	80,601	24.86

8-11. *Venereal diseases, all.*—Of the venereal diseases recognized in this study, gonococcus infection is by far the most important numerically. Consequently, in the table of grand total for venereal disease (Table 11) the distribution of gonococcus tends to control the distribution of the total. It will be more significant to compare the relative frequency of gonococcus infection and syphilis. A glance at the map of distribution of venereal diseases shows that these are commonest in the Southern States (Pl. III). From other studies it is known that the colored population has a much higher incidence of infection than whites, and since the colored population forms a larger proportion of the whole population of the Southern States than in the rest of the United States, it seems probable that the excessive venereal diseases in the Southern States is chiefly due to the colored population. Unfortunately returns from the physical examinations give no means of drawing a definite conclusion on this point. The excessive amount of venereal disease in the South holds both for gonococcus infection and for syphilis (Pl. XX). There is, however, this difference in the distribution of the two diseases: Gonococcus infection occurs in no State north of the latitude of the District of Columbia in excess of 5 per cent, although south of this latitude it runs from 3 to 8 per cent; whereas, in syphilis the State of Delaware has a greater incidence of the disease than the District of Columbia and the Southern States like Arkansas, North Carolina, and Virginia.

Taking the States north of the latitude of the District of Columbia we find that gonococcus infection occurs in them in the following order: Delaware (26.7 per mille); Maryland (24.5 per mille); Ohio (21.7 per mille); Indiana, Illinois, Pennsylvania, Kansas, and Michigan, all States about 1.5 per mille. In the cases of syphilis the order of these States run: Delaware, Indiana, Maryland, Illinois, Nebraska, Michigan, being States with over 0.5 per cent of cases.



On the other hand, venereal diseases are relatively rarer in the States of Vermont, South Dakota, Utah, Wisconsin, New Hampshire, Washington, North Dakota, Oregon, Idaho, Maine, Massachusetts, Connecticut, and California, in which less than 1.5 per cent of the registrants were found to have any form of venereal disease. It will be noted that these are prevailingly States of the northern tier—States with the lowest proportion of colored population; but some of these States contain a rather heavy proportion of recent immigrants, in part from southern Europe.

TABLE 8.—Grand total for syphilis, with ratio per 1,000 men, second-million men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Alabama.....	857	37.91	New Mexico.....	20	5.84
Louisiana.....	659	33.14	Kansas.....	103	5.39
Georgia.....	720	28.92	Pennsylvania.....	365	5.37
Delaware.....	45	24.30	Ohio.....	239	5.10
District of Columbia.....	105	22.93	Wyoming.....	18	5.07
Oklahoma.....	560	22.70	Minnesota.....	121	5.05
Florida.....	270	22.43	New York.....	403	4.81
Mississippi.....	385	22.15	Connecticut.....	46	4.61
Arkansas.....	419	20.46	Alaska.....	3	4.56
Maryland.....	216	17.02	New Jersey.....	105	4.53
Missouri.....	573	16.73	Rhode Island.....	18	3.97
South Carolina.....	297	16.50	Washington.....	40	3.86
North Carolina.....	366	15.67	Colorado.....	33	3.81
Illinois.....	766	13.69	Massachusetts.....	104	3.53
Indiana.....	265	10.34	Utah.....	12	3.28
Tennessee.....	233	10.31	North Dakota.....	18	2.92
Montana.....	92	9.31	Maine.....	22	2.87
Virginia.....	194	8.77	South Dakota.....	26	2.78
Michigan.....	248	8.46	New Hampshire.....	10	2.72
Nevada.....	8	8.24	Wisconsin.....	65	2.67
West Virginia.....	135	7.62	Oregon.....	16	2.01
Arizona.....	16	7.49	Vermont.....	5	1.71
Nebraska.....	82	7.30	Idaho.....	7	1.28
California.....	131	6.83	State not specified.....	119	1.25
Texas.....	281	6.18			
Iowa.....	163	5.97	Total.....	10,133	10.47
Kentucky.....	129	5.96			

TABLE 9.—Grand total for chancroid, with ratio per 1,000 men, second million men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Florida.....	80	6.65	Massachusetts.....	21	0.71
Georgia.....	124	4.98	Michigan.....	20	.68
South Carolina.....	89	4.94	New York.....	56	.67
Arkansas.....	82	4.00	New Mexico.....	2	.58
Mississippi.....	65	3.74	Wyoming.....	2	.56
Alabama.....	74	3.27	Iowa.....	15	.55
Tennessee.....	67	2.96	California.....	10	.52
Maryland.....	37	2.92	Kansas.....	10	.52
Kentucky.....	62	2.86	Nebraska.....	4	.36
Louisiana.....	51	2.56	Montana.....	3	.30
Virginia.....	51	2.31	Minnesota.....	7	.29
District of Columbia.....	10	2.18	Utah.....	1	.27
Texas.....	83	1.82	Wisconsin.....	6	.25
North Carolina.....	40	1.71	Rhode Island.....	1	.22
Delaware.....	3	1.62	South Dakota.....	2	.21
West Virginia.....	28	1.58	North Dakota.....	1	.16
Alaska.....	1	1.52	Maine.....	1	.13
Oklahoma.....	36	1.46	Washington.....	1	.10
Arizona.....	3	1.40	Idaho.....		
Missouri.....	47	1.37	Nevada.....		
Ohio.....	58	1.24	New Hampshire.....		
Pennsylvania.....	73	1.07	Oregon.....		
Illinois.....	56	1.00	Vermont.....		
Connecticut.....	9	.90	State not specified.....	10	.11
New Jersey.....	20	.86			
Colorado.....	7	.81	Total.....	1,448	1.50
Indiana.....	19	.74			

TABLE 10.—Grand total for gonococcus infection, with ratio per 1,000 men, second million men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Florida.....	1,616	134.24	Montana.....	246	24.88
South Carolina.....	1,978	109.88	Nevada.....	24	24.72
Mississippi.....	1,852	106.57	New York.....	2,037	24.29
Texas.....	4,735	104.08	Kansas.....	462	24.16
Georgia.....	2,533	101.74	Rhode Island.....	106	23.37
Louisiana.....	1,704	85.69	Iowa.....	638	23.35
Arkansas.....	1,655	80.82	Nebraska.....	262	23.32
Alabama.....	1,661	73.48	Idaho.....	116	21.17
New Mexico.....	209	61.00	Connecticut.....	210	21.04
Oklahoma.....	1,505	61.00	Maine.....	159	20.74
Virginia.....	1,330	60.13	Oregon.....	161	20.26
District of Columbia.....	254	55.46	California.....	388	20.23
North Carolina.....	1,219	52.18	Colorado.....	173	19.98
Tennessee.....	1,173	51.89	Massachusetts.....	570	19.34
Delaware.....	95	51.30	Minnesota.....	452	18.86
Missouri.....	1,614	47.13	Wyoming.....	63	17.74
Maryland.....	594	46.80	Wisconsin.....	423	17.37
West Virginia.....	770	43.47	Utah.....	58	15.83
Arizona.....	84	39.31	New Hampshire.....	58	15.77
Illinois.....	2,127	38.00	North Dakota.....	96	15.56
Indiana.....	922	35.98	Alaska.....	10	15.20
Michigan.....	1,037	35.39	South Dakota.....	118	12.61
Ohio.....	1,641	35.00	Vermont.....	33	11.32
Kentucky.....	665	30.71	State not specified.....	441	4.65
Pennsylvania.....	2,040	30.03			
New Jersey.....	686	29.60	Total.....	43,262	44.72
Washington.....	259	24.98			

TABLE 11.—Grand total for venereal diseases (all) with ratio per 1,000 men, second million men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Florida.....	1,966	163.32	Nevada.....	32	32.96
Georgia.....	3,377	135.64	Nebraska.....	348	30.97
Mississippi.....	2,302	132.46	Kansas.....	575	30.07
South Carolina.....	2,364	131.32	Iowa.....	816	29.87
Louisiana.....	2,414	121.40	New York.....	2,496	29.77
Alabama.....	2,592	114.67	Washington.....	300	28.93
Texas.....	5,099	112.08	California.....	529	27.58
Arkansas.....	2,156	105.28	Rhode Island.....	125	27.56
Oklahoma.....	2,101	85.15	Connecticut.....	265	26.55
District of Columbia.....	369	80.57	Colorado.....	213	24.60
Delaware.....	143	77.21	Minnesota.....	580	24.20
Virginia.....	1,575	71.21	Maine.....	182	23.74
North Carolina.....	1,625	69.56	Massachusetts.....	695	23.58
New Mexico.....	231	67.43	Wyoming.....	83	23.37
Maryland.....	847	66.73	Idaho.....	123	22.45
Missouri.....	2,234	65.24	Oregon.....	177	22.28
Tennessee.....	1,473	65.16	Alaska.....	14	21.28
Illinois.....	2,049	52.60	Wisconsin.....	494	20.28
West Virginia.....	933	52.67	Utah.....	71	19.38
Arizona.....	103	48.20	North Dakota.....	115	18.64
Indiana.....	1,206	47.07	New Hampshire.....	68	18.49
Michigan.....	1,305	44.54	South Dakota.....	146	15.60
Ohio.....	1,938	41.34	Vermont.....	38	13.03
Kentucky.....	856	39.53	State not specified.....	570	6.00
Pennsylvania.....	2,478	36.48			
New Jersey.....	811	34.99	Total.....	54,843	56.69
Montana.....	341	34.49			

12. *Alcoholism.*—The number of cases of alcoholism recorded seems surprisingly small. The maximum number in a State was Rhode Island (1.5 per mille). In Arizona, Florida, Oregon, Utah, and Washington no cases of alcoholism were noted, and in half the

States the proportion of the men examined who were regarded as alcoholic was less than 0.2 per thousand.

The largest amount of alcoholism recorded was in the Northern States, especially Rhode Island, Massachusetts, Illinois, Connecticut, Vermont, New Hampshire, Wisconsin, New Jersey, and Delaware (from 1.5 to 0.4 per thousand men). Near the top of the list appear also California and Missouri. On the other hand, the Southern States are on the whole characterized by the small amount of alcoholism found. This difference between the States of the Northeast and the South corresponds in a general way with the attitude of these two sections toward prohibition, since at the time of the draft prohibition was in effect in all of the Southern States and in few of those of the Northeast.

TABLE 12.—Grand total for alcoholism, with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Rhode Island.....	22	1.52	Mississippi.....	5	0.13
Massachusetts.....	99	1.08	South Carolina.....	5	.13
Illinois.....	150	.84	North Dakota.....	2	.11
California.....	55	.68	North Carolina.....	5	.09
Connecticut.....	24	.67	Idaho.....	1	.08
Missouri.....	54	.63	Tennessee.....	4	.07
Vermont.....	5	.59	Kansas.....	2	.05
New Hampshire.....	4	.47	South Dakota.....	1	.05
Wisconsin.....	28	.44	Montana.....	1	.04
New Jersey.....	31	.41	Virginia.....	2	.04
Delaware.....	2	.40	Georgia.....	2	.03
New Mexico.....	4	.39	Nebraska.....	1	.03
New York.....	96	.37	Oklahoma.....	2	.03
District of Columbia.....	4	.35	West Virginia.....	1	.03
Kentucky.....	22	.34	Alabama.....	1	.02
Pennsylvania.....	68	.34	Arkansas.....	1	.02
Maryland.....	11	.30	Texas.....	2	.02
Nevada.....	1	.30	Alaska.....		
Wyoming.....	2	.30	Arizona.....		
Minnesota.....	19	.26	Florida.....		
Maine.....	5	.25	Oregon.....		
Ohio.....	36	.25	Utah.....		
Indiana.....	15	.21	Washington.....		
Michigan.....	21	.21	State not specified.....	18	.19
Louisiana.....	7	.14			
Colorado.....	3	.13			
Iowa.....	9	.13	Total.....	853	.31

13. *Drug addiction.*—Rather remarkably, there was considerably more of drug addiction recorded than there was of alcoholism. That is, all States reported one or more cases of drug addiction. The maximum ratio was 2.4 per thousand, as contrasted with 1.5 for alcoholism. Drug addiction is less exclusively a northern defect than alcoholism. To be sure, the States with the greatest amount of drug addiction are the Northern States—for example, Delaware, 2.4 per mille; New York, 1.5 per mille; California, 1.3 per mille; Rhode Island, 1.3 per mille; and Washington, 1 per mille. However, Oklahoma, Tennessee, and Florida come high in the upper part of the list. Among the States with a low proportion of drug addiction are Indiana, Wisconsin, South Dakota, North Carolina, Alabama, and the Virginias. Thus, Alabama stands low both in the proportion of cases of drug addiction and in alcoholism. More of the Southern States, however, stand in the middle third of the series, such as



Georgia, South Carolina, Texas, and Louisiana. Apparently prohibition has had a slight influence in inducing the use of drugs in some Southern States. It is noteworthy that Kansas, which lies two-thirds down the list for alcoholism, stands at about one-third of the top of the list for drug addiction.

TABLE 13.—Grand total for drug addiction with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Delaware.....	12	2.37	New Hampshire.....	3	0.35
New York.....	383	1.49	Massachusetts.....	31	.34
California.....	108	1.34	Texas.....	40	.34
Rhode Island.....	19	1.31	Louisiana.....	16	.31
Nevada.....	4	1.22	Kentucky.....	19	.30
Washington.....	36	1.01	Maine.....	6	.30
Arizona.....	7	.84	Iowa.....	20	.29
Oklahoma.....	51	.84	Mississippi.....	10	.27
Alaska.....	1	.82	Arkansas.....	11	.26
Utah.....	9	.76	Montana.....	7	.26
Missouri.....	58	.68	Illinois.....	45	.25
New Jersey.....	51	.67	Michigan.....	25	.25
Connecticut.....	22	.61	Virginia.....	12	.22
Tennessee.....	33	.54	West Virginia.....	8	.21
Florida.....	12	.50	Idaho.....	2	.16
Colorado.....	11	.49	Alabama.....	8	.15
Kansas.....	18	.47	North Carolina.....	7	.13
Minnesota.....	34	.47	Vermont.....	1	.12
Ohio.....	64	.45	South Dakota.....	2	.10
Wyoming.....	3	.45	District of Columbia.....	1	.09
Georgia.....	27	.42	Wisconsin.....	6	.09
Pennsylvania.....	85	.42	Indiana.....	4	.06
New Mexico.....	4	.39	North Dakota.....	1	.06
Nebraska.....	11	.37	State not specified.....	107	1.13
Oregon.....	6	.37			
South Carolina.....	14	.36			
Maryland.....	13	.35	Total.....	1,448	.54

14. *Vices, including venereal disease, alcoholism, and drug addiction.*—It would seem useful to throw together the cases of venereal diseases, alcoholism, and drug addiction, which grouping may be justified on the ground that they constitute so-called vices. Since venereal diseases were much commoner than alcoholism and drug addiction, they largely control in the distribution. This distribution is given by States in Table 14 and in Plate IV, figure 1; Plate XXI, figure 3. A consideration of the table and charts shows, first, that the distribution runs exactly parallel to that of venereal disease throughout the States of the Southwest. Delaware, however, in total vices displaces North Carolina, being eleventh place in total venereal diseases. In the matter of total vices, Kansas and Michigan exchange places as compared with the total of venereal diseases. Rhode Island takes a relatively higher position in total vices than in venereal diseases, and the same is true of Massachusetts and also the State of Washington. But, for the most part, it will be noted that the series of total "vices" has been controlled by the total for venereal diseases.

TABLE 14.—Grand total for venereal diseases (all), alcoholism, and drug addiction with ratio per 1,000 men (second million men).

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Florida.....	1,969	163.57	Montana.....	346	35.00
Georgia.....	3,392	136.24	New York.....	2,667	31.81
Mississippi.....	2,310	132.92	Nebraska.....	351	31.24
South Carolina.....	2,370	131.65	Kansas.....	589	30.80
Louisiana.....	2,419	121.65	Iowa.....	829	30.35
Alabama.....	2,597	114.89	Washington.....	310	29.90
Texas.....	5,112	112.36	California.....	563	29.35
Arkansas.....	2,165	105.72	Rhode Island.....	129	28.45
Oklahoma.....	2,128	86.25	Connecticut.....	277	27.75
Delaware.....	153	82.61	Colorado.....	217	25.06
District of Columbia.....	370	80.79	Minnesota.....	599	25.00
Virginia.....	1,579	71.39	Massachusetts.....	736	24.97
North Carolina.....	1,630	69.77	Wyoming.....	86	24.21
New Mexico.....	233	68.01	Maine.....	185	24.13
Maryland.....	850	66.97	Alaska.....	15	22.80
Missouri.....	2,285	66.73	Oregon.....	180	22.65
Tennessee.....	1,490	65.91	Idaho.....	123	22.45
Illinois.....	3,043	54.37	Wisconsin.....	503	20.65
West Virginia.....	939	53.01	Utah.....	74	20.20
Arizona.....	105	49.13	New Hampshire.....	71	19.30
Indiana.....	1,215	47.42	North Dakota.....	115	18.64
Michigan.....	1,325	45.22	South Dakota.....	149	15.92
Ohio.....	1,985	42.34	Vermont.....	39	13.37
Kentucky.....	874	40.36	No State.....	597	46.77
Pennsylvania.....	2,541	37.41			
New Jersey.....	840	36.24			
Nevada.....	35	36.05			
			Total.....	55,704	57.58

15. *Curvature of the spine.*—This term is applied to a deviation from the normal form which depends upon a number of possible causes, such as tumors, tuberculosis, bad postural habits, and defects in nutrition affecting the development of the bones of the vertebrae.

An inspection of the graph (Pl. XXXIV, fig. 1) shows that this defect was found prevailing in Northern States, such as Vermont (9.0 per mille), Wisconsin (8.57 per mille), Maine (8.37 per mille), New Hampshire (7.5 per mille), and Colorado (7.2 per mille). On the other hand, some of the Southern States, like Arkansas, Texas, Louisiana, Alabama, were States of low incidence. Moreover, the States which were high for total tuberculosis occupy an intermediate position in incidence of curvature of the spine. Thus, Arizona comes at the very bottom of the list, at 1.93 per mille; New Mexico is near the bottom, at 3.52 per mille; Colorado is high, to be sure, and California occupies nearly a middle position, with 5.83 per mille. It will be seen by study of Table 8 that the great majority of the States have a ratio of incidence between 4 and 10 per mille. The range of variation is therefore not great, and great stress is not to be laid upon the position that a particular State occupies in the whole series.

TABLE 15.—Grand total for curvature of spine with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Vermont.....	76	9.03	North Dakota.....	94	5.26
Wisconsin.....	538	8.51	Michigan.....	508	5.13
Maine.....	165	8.32	New Jersey.....	386	5.08
Missouri.....	698	8.15	Georgia.....	316	4.95
New Hampshire.....	65	7.63	Florida.....	119	4.93
Colorado.....	162	7.20	Kentucky.....	314	4.91
Tennessee.....	411	6.72	Washington.....	173	4.87
Utah.....	79	6.71	Nevada.....	16	4.86
Virginia.....	371	6.67	District of Columbia.....	56	4.85
Connecticut.....	236	6.57	Mississippi.....	179	4.75
Massachusetts.....	600	6.57	Oklahoma.....	279	4.59
Rhode Island.....	94	6.48	South Dakota.....	93	4.48
Oregon.....	101	6.31	Montana.....	122	4.45
New York.....	1,614	6.26	Alabama.....	221	4.26
Illinois.....	1,119	6.24	Kansas.....	159	4.14
Minnesota.....	444	6.17	Nebraska.....	111	3.77
Ohio.....	860	6.02	Louisiana.....	189	3.65
Indiana.....	430	6.01	Texas.....	426	3.59
Delaware.....	30	5.93	New Mexico.....	36	3.52
California.....	470	5.83	Arkansas.....	150	3.51
Iowa.....	389	5.67	Wyoming.....	21	3.16
West Virginia.....	220	5.65	Alaska.....	3	2.46
North Carolina.....	312	5.63	Arizona.....	16	1.93
South Carolina.....	215	5.46	State not specified.....	187	1.97
Idaho.....	68	5.45			
Maryland.....	201	5.40	Total.....	15,231	5.53
Pennsylvania.....	1,089	5.38			

16. *Diabetes mellitus*.—(See Table 16.)

TABLE 16.—Grand total for diabetes mellitus with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Connecticut.....	44	1.23	Ohio.....	33	0.23
Vermont.....	6	.71	Montana.....	6	.22
Oregon.....	11	.69	North Dakota.....	4	.22
South Dakota.....	13	.63	Pennsylvania.....	45	.22
Maine.....	11	.55	Colorado.....	4	.18
Wisconsin.....	35	.55	Indiana.....	13	.18
Iowa.....	34	.50	Kansas.....	7	.18
Arizona.....	4	.48	Idaho.....	2	.16
Utah.....	5	.42	North Carolina.....	9	.16
Nebraska.....	12	.41	Tennessee.....	9	.15
Maryland.....	15	.40	Wyoming.....	1	.15
New York.....	101	.39	Alabama.....	7	.14
California.....	31	.38	Oklahoma.....	7	.12
District of Columbia.....	4	.35	Texas.....	12	.10
New Hampshire.....	3	.35	Arkansas.....	4	.09
Rhode Island.....	5	.34	Kentucky.....	6	.09
Illinois.....	57	.32	Florida.....	2	.08
Massachusetts.....	29	.32	South Carolina.....	3	.08
Nevada.....	1	.30	Georgia.....	4	.06
New Jersey.....	22	.29	Louisiana.....	1	.02
West Virginia.....	11	.28	Alaska.....		
Michigan.....	27	.27	Delaware.....		
Mississippi.....	10	.27	New Mexico.....		
Virginia.....	14	.25	State not specified.....	10	.11
Washington.....	9	.25			
Minnesota.....	17	.24	Total.....	740	.27
Missouri.....	20	.23			

17. *Exophthalmic goiter*.—This disease ranged in frequency from 0.3 to 9.4 per mille in the different States. The distribution as shown in Table 17 and Plate II, figure 3, is extremely suggestive. The State of Washington has a larger proportion than any other State, nearly 1 per cent of the men examined. This is followed by Wisconsin.



sin, Michigan, Oregon, Illinois, and Ohio (8 to 5 per mille). These are all States bordering the Great Lakes, excepting Oregon, in the extreme Northwest. As the map indeed shows, the region of highest incidence of exophthalmic goiter is the extreme northwestern group of States, and, secondly, the States adjacent to the Great Lakes. The least amount of exophthalmic goiter is found in the Gulf States, like Texas, Arkansas, Florida, Louisiana, Alabama, and Mississippi, all States with less than 1 per mille of the population. Simple goiter is relatively much commoner than exophthalmic goiter. It appears, however, that it has a smaller distribution than the former. Thus, again, the Northwestern States of Idaho, Oregon, Washington, Montana, Utah, and Wyoming are at the very head of the list, with from 27 to 15 cases per thousand men examined. Also, States adjacent to the Great Lakes come second, with Wisconsin, Michigan, North Dakota, Minnesota, Illinois, Indiana, and Ohio showing from 15 to 5 per thousand. The intermediate ratios are those found in the States of the middle zone and of the prairie States of Iowa, Mississippi, Nebraska, and Kansas. This peculiar distribution raises inquiry whether it may not be due to conditions of the drinking water, which, around the Great Lakes, is strongly impregnated with lime, or whether it is primarily due to the racial constitution of the population. The waters of Washington and Oregon are, however, soft. It is true that the States of Wisconsin and Minnesota stand high in the proportion of Scandinavians in the population. This may have something to do with the high incidence of goiter in these States. The racial element, however, certainly plays a small part in the high incidence of exophthalmic goiter in Ohio, Pennsylvania, and Illinois.

TABLE 17.—Grand total for goiter, exophthalmic, with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Washington.....	335	9.42	North Carolina.....	106	1.91
Wisconsin.....	502	7.94	California.....	157	1.95
Alaska.....	9	7.39	South Carolina.....	68	1.73
Michigan.....	682	6.89	Nebraska.....	50	1.70
Oregon.....	102	6.37	Georgia.....	103	1.61
Illinois.....	999	5.57	New Jersey.....	117	1.54
Ohio.....	726	5.08	Connecticut.....	55	1.53
Pennsylvania.....	973	4.81	Nevada.....	5	1.52
Missouri.....	411	4.80	Kentucky.....	88	1.38
West Virginia.....	176	4.52	Rhode Island.....	18	1.24
Vermont.....	36	4.28	Arizona.....	8	.96
Virginia.....	222	3.99	New Hampshire.....	8	.94
Utah.....	45	3.82	New Mexico.....	9	.88
Colorado.....	81	3.60	Oklahoma.....	53	.87
Maryland.....	133	3.57	Maine.....	17	.86
District of Columbia.....	40	3.47	Mississippi.....	30	.80
North Dakota.....	61	3.41	Alabama.....	41	.79
Montana.....	93	3.39	Delaware.....	4	.79
Minnesota.....	243	3.38	Louisiana.....	39	.75
Idaho.....	40	3.20	Florida.....	16	.66
South Dakota.....	66	3.18	Massachusetts.....	58	.63
Indiana.....	223	3.12	Arkansas.....	16	.37
New York.....	757	2.94	Texas.....	42	.34
Iowa.....	196	2.86	State not specified.....	137	1.44
Kansas.....	106	2.76			
Wyoming.....	18	2.71			
Tennessee.....	127	2.07	Total.....	8,647	3.14

18. *Simple goiter*.—(See Table 18.)

TABLE 18.—Grand total for goiter, simple, with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Idaho.....	335	26.91	Kentucky.....	90	1.41
Oregon.....	421	26.31	District of Columbia.....	16	1.39
Washington.....	832	23.40	Kansas.....	48	1.25
Montana.....	576	21.00	Arizona.....	10	1.21
Utah.....	185	15.72	New York.....	308	1.19
Wyoming.....	102	15.37	Maryland.....	35	.94
Wisconsin.....	886	14.02	South Carolina.....	37	.94
Alaska.....	16	13.14	Connecticut.....	32	.89
Michigan.....	1,131	11.43	New Mexico.....	9	.88
North Dakota.....	156	8.73	Oklahoma.....	44	.72
Minnesota.....	578	8.04	New Hampshire.....	6	.70
West Virginia.....	307	7.89	Maine.....	13	.66
Illinois.....	1,397	7.79	Mississippi.....	24	.64
Iowa.....	458	6.68	Louisiana.....	32	.62
Indiana.....	464	6.49	Delaware.....	3	.59
Nevada.....	21	6.38	Alabama.....	29	.56
Ohio.....	798	5.59	Rhode Island.....	8	.55
Colorado.....	119	5.29	Georgia.....	33	.52
California.....	359	4.45	New Jersey.....	33	.43
Pennsylvania.....	829	4.10	Arkansas.....	17	.40
South Dakota.....	85	4.09	Massachusetts.....	29	.32
Missouri.....	342	3.99	Texas.....	36	.30
Virginia.....	188	3.38	Florida.....	6	.25
Nebraska.....	63	2.14	State not specified.....	186	1.96
Vermont.....	18	2.14			
Tennessee.....	120	1.96	Total.....	11,971	4.35
North Carolina.....	100	1.81			

19. *Obesity*.—The examination of table 19 shows that the total amount of obesity found was never extremely large, under 6,000 cases altogether. The distribution is rather peculiar (Pl. VI, fig. 4). The maximum ratio of cases recorded is in the State of Rhode Island. With a considerable interval, Maine comes second, and after that Utah, New York, Delaware, Massachusetts (from 3.7 to 2.9 per mille). On the other hand, the States with the smallest amount of obesity were largely in the South, such as West Virginia, Alabama, South Carolina, Mississippi, and Florida, all under 1 per mille. Common observation indicates that the southern men have a tendency to lankiness, and this has often been attributed to infection with malaria, hookworm, and other parasites found prevalingly in the South. On the other hand, the racial differences between the North, with its large number of recent immigrants from southern Europe, and the Southern States must not be overlooked.

TABLE 19.—Grand total for obesity, with ratio per 1,000 men.

States.	Number of cases.	Ratio per 1,000.	States.	Number of cases.	Ratio per 1,000.
Rhode Island.....	83	5.73	Michigan.....	154	1.56
Maine.....	74	3.73	Georgia.....	96	1.50
Utah.....	43	3.65	Maryland.....	56	1.50
New York.....	774	3.00	South Dakota.....	29	1.40
Delaware.....	15	2.97	Tennessee.....	77	1.26
Massachusetts.....	267	2.92	North Carolina.....	68	1.23
Missouri.....	223	2.60	Virginia.....	67	1.20
Iowa.....	170	2.48	North Dakota.....	21	1.18
California.....	192	2.38	Louisiana.....	57	1.10
Vermont.....	19	2.26	Kansas.....	41	1.07
New Jersey.....	169	2.23	Arkansas.....	44	1.03
Illinois.....	385	2.15	Florida.....	23	.95
Nevada.....	7	2.13	Washington.....	30	.84
New Hampshire.....	18	2.11	Mississippi.....	31	.82
Connecticut.....	72	2.00	Colorado.....	18	.80
Indiana.....	139	1.94	Idaho.....	10	.80
Oregon.....	31	1.94	Montana.....	22	.80
Texas.....	218	1.84	New Mexico.....	8	.78
District of Columbia.....	21	1.82	South Carolina.....	29	.74
Wisconsin.....	115	1.82	Alabama.....	38	.73
Nebraska.....	51	1.73	Arizona.....	5	.60
Minnesota.....	124	1.72	West Virginia.....	23	.59
Ohio.....	244	1.71	Wyoming.....	2	.30
Kentucky.....	106	1.66	State not specified.....	35	.37
Alaska.....	2	1.64			
Oklahoma.....	97	1.60			
Pennsylvania.....	324	1.60	Total.....	4,967	1.80

20. *Combined paralyses—hemiplegia and apoplexy, facial paralysis, paraplegia, and monoplegia.*—These defects were, as table 20 shows, found at between 5 and 1 per thousand of the registrants examined. In respect to these diseases, the three New England States of Vermont, New Hampshire, and Rhode Island stand at the very top, while other Northeastern States, like Massachusetts and Connecticut, lie in the lower half of the list. The Southern States are mostly found in the lower half of the list, yet Texas, Florida, and North Carolina stand in the upper third. The States of least incidence of these paralyses are the sparsely settled States of Arizona, Montana, and Wyoming. The number of cases from these States was small, absolutely as well as relatively, or it may be that less thorough work was done by the examining physicians of these States than was done in the more densely populated States.

TABLE 20.—Grand total for hemiplegia and apoplexy, facial paralysis, paraplegia, monoplegia, with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Vermont.....	45	5.35	South Carolina.....	98	2.49
Rhode Island.....	68	4.70	New Jersey.....	188	2.43
New Hampshire.....	36	4.23	Nevada.....	8	2.44
Alaska.....	5	4.10	Massachusetts.....	211	2.31
Texas.....	406	3.42	South Dakota.....	48	2.30
Maryland.....	127	3.41	Alabama.....	116	2.24
Utah.....	39	3.31	Georgia.....	143	2.24
Iowa.....	221	3.23	Tennessee.....	137	2.24
Florida.....	76	3.15	Michigan.....	220	2.21
North Carolina.....	174	3.14	Nebraska.....	65	2.20
Oklahoma.....	187	3.08	District of Columbia.....	25	2.17
Maine.....	59	2.98	Arkansas.....	91	2.14
California.....	238	2.96	Connecticut.....	76	2.12
Washington.....	102	2.87	Kansas.....	80	2.08
New York.....	739	2.86	Idaho.....	25	2.00
Colorado.....	64	2.85	Kentucky.....	120	1.88
Wisconsin.....	179	2.84	Mississippi.....	70	1.86
Missouri.....	240	2.80	Delaware.....	8	1.59
Oregon.....	44	2.74	North Dakota.....	27	1.51
Pennsylvania.....	555	2.73	West Virginia.....	55	1.42
Illinois.....	475	2.65	Wyoming.....	9	1.35
Minnesota.....	190	2.65	Montana.....	35	1.28
Louisiana.....	136	2.63	Arizona.....	7	.84
New Mexico.....	27	2.63	State not specified.....	26	.27
Virginia.....	145	2.60			
Ohio.....	369	2.58	Total.....	7,015	2.55
Indiana.....	181	2.53			



21. *Epilepsy*.—This disease was recorded in a varied amount in the different States. In the case of Vermont, in 12.7 per mille; in the case of South Dakota, in only 1.2 per mille. As the map of distribution (Pl. VIII, fig. 6) shows, this disease was recorded in relatively more Northern States than Southern. Thus, Vermont, New Hampshire, Connecticut, Rhode Island, Maine, Indiana, New York, and Ohio lie in the upper third of the list. It is true, however, that some Southern States stand high in the list, such as Louisiana (6.8 per mille), North Carolina (6.6 per mille), Virginia (6.5 per mille), and Mississippi (5.9 per mille). In the lower third lie Alabama and Georgia, also many Western States. Epilepsy seems to be commoner in the older settled States, but this may possibly be due to the fact that the examination was perhaps more critically made in these States.

TABLE 21.—Grand total for epilepsy, with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Vermont.....	107	12.72	Oklahoma.....	280	4.61
Maryland.....	297	7.98	New Jersey.....	328	4.32
New Hampshire.....	60	7.04	West Virginia.....	168	4.32
Connecticut.....	247	6.88	New Mexico.....	44	4.30
Louisiana.....	356	6.88	Nebraska.....	124	4.21
Rhode Island.....	97	6.69	District of Columbia.....	47	4.07
North Carolina.....	365	6.59	Alabama.....	204	3.94
Maine.....	128	6.46	Oregon.....	63	3.94
Virginia.....	359	6.45	Washington.....	140	3.94
Indiana.....	438	6.12	Michigan.....	387	3.91
New York.....	1,564	6.07	North Dakota.....	69	3.86
Mississippi.....	223	5.92	Kansas.....	145	3.77
Massachusetts.....	539	5.90	Minnesota.....	271	3.77
Ohio.....	836	5.85	Georgia.....	237	3.71
Texas.....	692	5.84	Utah.....	41	3.48
Missouri.....	497	5.80	Nevada.....	11	3.34
Pennsylvania.....	1,105	5.46	Idaho.....	41	3.28
Florida.....	129	5.35	Delaware.....	14	2.77
Kentucky.....	334	5.23	Montana.....	74	2.70
Colorado.....	117	5.20	Wyoming.....	11	1.66
Arkansas.....	221	5.18	Alaska.....	2	1.64
Iowa.....	349	5.09	Arizona.....	13	1.57
South Carolina.....	198	5.03	South Dakota.....	25	1.20
Tennessee.....	308	5.03	State not specified.....	335	3.53
Wisconsin.....	310	4.91			
California.....	395	4.90			
Illinois.....	850	4.74	Total.....	14,195	5.15

22. *Chorea*.—This is probably a complex disease, comprising on the one hand Sydenham's chorea, Huntington's chorea, and possibly certain forms of spinal sclerosis. The total number of cases recorded is rather small, 593. On examining Table 22 and Plate VIII and figure 5, it appears that the greatest incidence of chorea is in the Northern States, such as Vermont, Delaware, Maine, New Hampshire, and Wisconsin, which stand at the very head of the list. On the other hand, at the bottom of the list stand certain Western States, like Wyoming, Nevada, and Arizona, with no cases at all, and Idaho, North Dakota, Montana, and Oregon with very few.

Although Huntington's chorea is not treated separately on the charts, it is clear from the large Table 3 and from other sources of information that this is in part responsible for the high rate of chorea in Vermont, Massachusetts, and New York. We may conclude that the extreme Western States, which in so many other respects show themselves comparatively free from nervous and mental disorders, are relatively free from chorea also.

TABLE 22.—Grand total for chorea, with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Vermont.....	5	0.59	Colorado.....	4	0.18
Delaware.....	2	.40	Indiana.....	13	.18
Maine.....	7	.35	Arkansas.....	7	.16
New Hampshire.....	3	.35	New Jersey.....	12	.16
Wisconsin.....	22	.35	South Carolina.....	6	.15
Utah.....	4	.34	West Virginia.....	6	.15
Texas.....	39	.33	Georgia.....	9	.14
Mississippi.....	12	.32	Oklahoma.....	8	.13
Missouri.....	27	.32	Alabama.....	6	.12
Washington.....	10	.28	Louisiana.....	6	.12
Kentucky.....	17	.27	Oregon.....	2	.12
Michigan.....	27	.27	Montana.....	3	.11
Ohio.....	38	.27	North Dakota.....	2	.11
Minnesota.....	19	.26	Kansas.....	4	.10
Tennessee.....	16	.26	District of Columbia.....	1	.09
California.....	20	.25	Connecticut.....	3	.08
North Carolina.....	14	.25	Florida.....	2	.08
Massachusetts.....	22	.24	Idaho.....	1	.08
Pennsylvania.....	48	.24	Maryland.....	3	.08
Illinois.....	39	.22	Alaska.....		
Virginia.....	12	.22	Arizona.....		
New York.....	55	.21	Nevada.....		
Rhode Island.....	3	.21	Wyoming.....		
Iowa.....	14	.20	State not specified.....	8	.08
Nebraska.....	6	.20			
New Mexico.....	2	.20			
South Dakota.....	4	.19	Total.....	593	.22

23-24. *Neurasthenia and neurosis* (see Tables 23 and 24).

25. *Hysteria*.—Very few cases of hysteria (Table 25) were recorded on Form 1010. The largest proportion was in Kansas (1.8 per mille). The Northern and Southern States are intermingled in the upper third: South Carolina and Maine; Georgia and Rhode Island; North Carolina and New York; Florida and Oregon. Since hysteria was not given as a defect to be recorded, nor was it carefully defined and specifically warned against; it is not strange that the numbers found run small for nearly all States and the variations in the ratios are probably without importance.

26. *Grand total for neurasthenia, neuroses, and hysteria*.—This group of neuroses and nerve weakness has a rather low rate, comprising only 2,461 cases, or 0.9 per thousand men. This distribution by States is shown in Table 26 and Plates VIII and figures 1, 2, 3. A consideration of the table and charts shows that a leading center of this group is in the middle Mississippi Valley. Thus, at the head of the list, stands Kansas (2.4 per mille); and this is followed rather closely by Missouri (1.3 per mille), Iowa (1.2 per mille), Wisconsin (1.0 per mille), Illinois (0.9 per mille).

A second center, more or less confluent of the first, is found in the Southeastern States. Thus South Carolina and North Carolina are second and third on the list, and in the upper half of the list one finds Alabama (1.1 per mille), Virginia (0.8 per mille), and Arkansas (0.7 per mille). It is true, however, that Louisiana and Mississippi lie in the lower part of the middle third of the list.

A third center for this group can be dimly seen in the New England and the Middle States. Thus Vermont stands fourth on the list, Massachusetts fifth, Maine seventh, and Rhode Island, New York, Connecticut, Pennsylvania, Delaware, New Jersey, and New Hampshire fall in the upper half of the list. On the other hand, the region of least incidence is that tributary to Camp Lewis, including Nevada and Arizona, with no cases; Wyoming, New Mexico, Montana, Idaho, and Utah, each with less than 9.

The States of the eastern middle zone, like Indiana, Tennessee, Maryland, Ohio, and Michigan tend to occupy the middle part of the list. An interpretation of this rather peculiar distribution is difficult. Perhaps the high proportion of cases in the southeast is due to the large number of colored people there, as the hysteria rate for colored is about twice that of whites. On the other hand, neurasthenia is less common among the colored people.<sup>1</sup>

The reason for the central Mississippi group does not at once appear. It may be partly influenced by the considerable migration of the colored people from the southeast. The large amount of these defects found in the New England States may be in part attributed to the new immigration and in part to the remains of the old immigration that have been left behind in the widespread migration of that older stock to the West.

TABLE 23.—Grand total for neurasthenia, with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
South Carolina.....	57	1.45	Louisiana.....	23	0.44
North Carolina.....	57	1.03	District of Columbia.....	5	.43
Vermont.....	8	.95	Mississippi.....	16	.42
Massachusetts.....	86	.94	Ohio.....	60	.42
Colorado.....	19	.84	Maine.....	8	.40
New Hampshire.....	7	.82	Michigan.....	40	.40
Oregon.....	13	.81	Texas.....	46	.39
Iowa.....	54	.79	Kentucky.....	22	.34
Connecticut.....	26	.72	North Dakota.....	6	.34
Alabama.....	37	.71	South Dakota.....	7	.34
Missouri.....	58	.68	Arkansas.....	14	.33
Wisconsin.....	43	.68	Oklahoma.....	19	.31
New York.....	168	.65	Nebraska.....	8	.27
California.....	52	.64	Florida.....	6	.25
Illinois.....	107	.60	Utah.....	3	.25
Delaware.....	3	.59	Georgia.....	13	.20
Indiana.....	42	.59	Idaho.....	2	.16
Virginia.....	32	.58	West Virginia.....	6	.15
Minnesota.....	40	.56	Wyoming.....	1	.15
Pennsylvania.....	107	.53	Montana.....	3	.11
Maryland.....	19	.51	New Mexico.....	1	.10
New Jersey.....	38	.50	State not specified.....	42	.44
Tennessee.....	30	.49			
Rhode Island.....	7	.48	Total.....	1,494	.54
Washington.....	16	.45			
Kansas.....	17	.44			

TABLE 24.—Grand total for neurosis, with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
South Dakota.....	6	0.29	South Carolina.....	4	0.10
Rhode Island.....	4	.28	Texas.....	12	.10
Missouri.....	21	.25	District of Columbia.....	1	.09
Vermont.....	2	.24	Indiana.....	6	.08
Wisconsin.....	14	.22	Minnesota.....	6	.08
Maine.....	4	.20	Mississippi.....	3	.08
Massachusetts.....	18	.20	Oklahoma.....	5	.08
Connecticut.....	7	.19	Tennessee.....	5	.08
New York.....	40	.16	Washington.....	3	.08
Iowa.....	10	.15	North Carolina.....	4	.07
Alabama.....	7	.14	Georgia.....	4	.06
Arkansas.....	6	.14	Louisiana.....	3	.06
Nebraska.....	4	.14	North Dakota.....	1	.06
Ohio.....	20	.14	Oregon.....	1	.06
Colorado.....	3	.13	Maryland.....	2	.05
Kansas.....	5	.13	Virginia.....	3	.05
Michigan.....	13	.13	West Virginia.....	2	.05
New Jersey.....	9	.12	Montana.....	1	.04
Pennsylvania.....	25	.12	State not specified.....	8	.08
Illinois.....	19	.11			
Kentucky.....	7	.11	Total.....	326	.12
California.....	8	.10			

<sup>1</sup> Report of Surgeon General, United States Army, 1918, Table XV.



TABLE 25.—Grand total for hysteria, with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Kansas.....	70	1.82	Idaho.....	2	0.16
South Carolina.....	33	.84	Mississippi.....	6	.16
Maine.....	12	.61	Oklahoma.....	10	.16
Missouri.....	33	.39	Montana.....	4	.15
Georgia.....	22	.34	Nebraska.....	4	.14
Rhode Island.....	5	.34	Virginia.....	8	.14
North Carolina.....	18	.33	Colorado.....	3	.13
Alabama.....	15	.29	Maryland.....	5	.13
New York.....	73	.28	Ohio.....	19	.13
Arkansas.....	11	.26	Tennessee.....	8	.13
Florida.....	6	.25	Texas.....	15	.13
Oregon.....	4	.25	Indiana.....	8	.11
Vermont.....	2	.24	Kentucky.....	7	.11
Pennsylvania.....	46	.23	Washington.....	4	.11
California.....	18	.22	Michigan.....	10	.10
Iowa.....	15	.22	New Mexico.....	1	.10
Massachusetts.....	20	.22	South Dakota.....	2	.10
West Virginia.....	8	.21	District of Columbia.....	1	.09
Delaware.....	1	.20	Utah.....	1	.08
Illinois.....	32	.18	Minnesota.....	5	.07
Connecticut.....	6	.17	Wisconsin.....	4	.06
Louisiana.....	9	.17	State not specified.....	39	.41
New Jersey.....	13	.17			
North Dakota.....	3	.17	Total.....	641	.23

TABLE 26.—Grand total for neurasthenia, neurosis, and hysteria, with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Kansas.....	92	2.39	Minnesota.....	51	0.71
South Carolina.....	94	2.39	Tennessee.....	43	.70
North Carolina.....	79	1.43	Maryland.....	26	.69
Vermont.....	12	1.43	Ohio.....	99	.69
Massachusetts.....	124	1.36	Louisiana.....	35	.67
Missouri.....	112	1.32	Mississippi.....	25	.66
Maine.....	24	1.21	Washington.....	23	.64
Iowa.....	79	1.16	Michigan.....	63	.63
Alabama.....	59	1.14	Texas.....	73	.62
Oregon.....	18	1.12	District of Columbia.....	7	.61
Colorado.....	25	1.10	Georgia.....	39	.60
Rhode Island.....	16	1.10	North Dakota.....	10	.57
New York.....	281	1.09	Kentucky.....	36	.56
Connecticut.....	39	1.08	Nebraska.....	16	.55
California.....	78	.96	Oklahoma.....	34	.55
Wisconsin.....	61	.96	Florida.....	12	.50
Illinois.....	158	.89	West Virginia.....	16	.41
Pennsylvania.....	178	.88	Utah.....	4	.33
New Hampshire.....	7	.82	Idaho.....	4	.32
Delaware.....	4	.79	Montana.....	8	.30
New Jersey.....	60	.79	New Mexico.....	2	.20
Indiana.....	56	.78	Wyoming.....	1	.15
Virginia.....	43	.77	State not specified.....	89	.93
Arkansas.....	31	.73			
South Dakota.....	15	.73	Total.....	2,461	.89

27. *Defective speech.*—Defective speech was found in a ratio varying from 2.3 to 0.02 per thousand in different States (Table 27). At the head of the list stand the longer-settled States, such as Maine, Maryland, Kentucky, Virginia, Vermont, and Tennessee. At the bottom of the list stand more of the recently settled States like New Mexico, Arizona, Kansas, Oklahoma, Wyoming, Nebraska, and Texas. The middle group of States comprises the larger ones—those containing great cities like Massachusetts, Pennsylvania, and New York. The meaning of this variation in the distribution by States of speech defect is, however, not very clear. In general the Western States show relatively few developmental defects.

TABLE 27.—Grand total for speech defective with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Maine.....	46	2.32	North Dakota.....	18	1.01
Maryland.....	68	1.83	Delaware.....	5	.99
Kentucky.....	109	1.71	New York.....	255	.99
Virginia.....	95	1.71	California.....	78	.97
Vermont.....	14	1.66	Illinois.....	172	.96
Alaska.....	2	1.64	Washington.....	34	.96
Tennessee.....	99	1.62	Louisiana.....	48	.93
Wisconsin.....	100	1.58	Florida.....	22	.91
South Carolina.....	62	1.57	Montana.....	25	.91
West Virginia.....	59	1.52	District of Columbia.....	10	.87
Oregon.....	22	1.37	Utah.....	10	.85
Idaho.....	17	1.36	Texas.....	100	.84
Iowa.....	91	1.33	Nebraska.....	24	.81
Indiana.....	88	1.23	Arkansas.....	32	.75
Ohio.....	172	1.20	Connecticut.....	27	.75
Mississippi.....	44	1.17	Wyoming.....	5	.75
Missouri.....	100	1.17	Alabama.....	38	.73
Massachusetts.....	102	1.12	Oklahoma.....	44	.72
North Carolina.....	62	1.12	Kansas.....	27	.70
Minnesota.....	79	1.10	Nevada.....	2	.61
Rhode Island.....	16	1.10	Arizona.....	5	.60
Pennsylvania.....	218	1.08	New Mexico.....	2	.22
Michigan.....	105	1.06	New Hampshire.....	7	.02
South Dakota.....	22	1.06	State not specified.....	36	.38
Georgia.....	67	1.05			
New Jersey.....	78	1.03			
Colorado.....	23	1.02	Total.....	2,986	1.08

28. *Deaf and dumb.*—The variation of deaf and dumb in the population of military age (Table 28) varied from 1.5 per thousand in New Hampshire and Ohio to less than one-half of 1 per thousand in Alabama, Delaware, Wyoming, and Arizona (mostly small numbers). Since the numbers for each State are always rather small, too much stress may not be laid upon them, but it seems fairly clear that in the more populous States with the largest proportion of foreign immigrants the proportion of deaf and dumb tends to increase. Thus in the upper third of the States with respect to deaf and dumb lie Ohio, New York, Illinois, Massachusetts, New Jersey, and Rhode Island. There is doubtless some racial factor which has not been worked out to account for the large proportion of deaf and dumb in the States with a large foreign population. The Southern and Western States stand toward the bottom of the list, because the colored and the frontier population has relatively few congenital defects.

TABLE 28.—Grand total for deaf and dumb mute with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
New Hampshire.....	13	1.53	Vermont.....	7	0.83
Ohio.....	219	1.53	Alaska.....	1	.82
Kentucky.....	86	1.34	Maine.....	16	.81
Louisiana.....	69	1.34	California.....	63	.78
Texas.....	154	1.30	Michigan.....	77	.78
Tennessee.....	79	1.29	Utah.....	9	.76
New York.....	324	1.26	Arkansas.....	32	.75
Virginia.....	69	1.24	Oregon.....	12	.75
Indiana.....	87	1.22	Mississippi.....	28	.74
Illinois.....	208	1.16	North Dakota.....	13	.73
North Carolina.....	64	1.15	West Virginia.....	28	.72
Massachusetts.....	104	1.14	District of Columbia.....	8	.70
Minnesota.....	81	1.12	Florida.....	16	.67
New Jersey.....	85	1.12	Iowa.....	46	.67
Rhode Island.....	16	1.11	Washington.....	23	.65
Missouri.....	93	1.09	South Carolina.....	25	.64
Oklahoma.....	66	1.09	Montana.....	17	.62
Wisconsin.....	62	.98	Georgia.....	39	.61
Maryland.....	36	.96	Idaho.....	7	.56
Pennsylvania.....	195	.96	Alabama.....	21	.41
Nebraska.....	28	.95	Delaware.....	2	.40
Connecticut.....	33	.92	Wyoming.....	2	.30
Colorado.....	20	.89	Arizona.....	2	.24
New Mexico.....	9	.88	State not specified.....	3	.03
Kansas.....	33	.86			
South Dakota.....	18	.86	Total.....	2,748	1.00

29. *Deafness*.—Deafness is due to so great a variety of causes that it will be difficult to account for the variation in the distribution of incidence of deafness among the different States. (Table 29.) On the one hand a certain amount of deafness is due to syphilitic infection of the child before birth; on the other hand a large amount of congenital deafness is hereditary, and there is often an hereditary tendency to progressive deafness due to catarrhal and other conditions. We find that the more populous States of New Jersey, Massachusetts, Pennsylvania, Texas, and New York occupy the middle position in the list of States arranged by ratio of incidence of deafness. Southern and Western States are relatively free, as in the case of deaf-mutism, and for the same reasons.

TABLE 29.—Grand total for deafness, with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Vermont.....	25	2.97	Maryland.....	44	1.18
Maine.....	56	2.83	New Mexico.....	12	1.17
Oregon.....	37	2.31	Minnesota.....	82	1.14
Kentucky.....	145	2.27	Mississippi.....	43	1.14
Virginia.....	107	1.92	South Carolina.....	45	1.14
Washington.....	68	1.91	Kansas.....	43	1.12
Utah.....	22	1.87	New Hampshire.....	9	1.06
Oklahoma.....	112	1.84	Iowa.....	71	1.04
Tennessee.....	111	1.81	Louisiana.....	50	.97
Missouri.....	153	1.79	Illinois.....	171	.95
Rhode Island.....	26	1.79	Indiana.....	66	.92
South Dakota.....	36	1.73	Nevada.....	3	.91
District of Columbia.....	19	1.65	Wyoming.....	6	.90
Alaska.....	2	1.64	Nebraska.....	25	.85
Ohio.....	229	1.60	Michigan.....	75	.76
West Virginia.....	62	1.59	Idaho.....	8	.64
North Dakota.....	28	1.57	Alabama.....	28	.54
North Carolina.....	85	1.53	Colorado.....	11	.49
New Jersey.....	109	1.44	Florida.....	11	.46
Wisconsin.....	91	1.44	Connecticut.....	6	.17
Massachusetts.....	129	1.41	Arizona.....	1	.12
Pennsylvania.....	276	1.36	Georgia.....	6	.09
Texas.....	159	1.34	Arkansas.....	1	.02
California.....	102	1.26	State not specified.....	9	.09
Montana.....	34	1.24			
Delaware.....	6	1.19			
New York.....	308	1.19	Total.....	3,363	1.22

### 30. *Defective hearing*—(See Table 30).

TABLE 30.—Grand total for defective hearing with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Maine.....	239	12.06	Minnesota.....	389	5.41
Connecticut.....	430	11.97	Arkansas.....	229	5.35
Vermont.....	93	11.05	Oklahoma.....	320	5.27
Rhode Island.....	149	10.28	District of Columbia.....	59	5.11
Alaska.....	12	9.85	North Carolina.....	281	5.07
New Hampshire.....	78	9.15	New Jersey.....	382	5.03
Nevada.....	28	8.51	Michigan.....	494	4.99
Washington.....	298	8.38	Montana.....	136	4.96
Maryland.....	305	8.20	Florida.....	118	4.89
Massachusetts.....	688	7.53	West Virginia.....	183	4.70
Colorado.....	165	7.33	Georgia.....	293	4.59
Utah.....	86	7.31	Texas.....	544	4.59
Oregon.....	113	7.06	Pennsylvania.....	915	4.52
New Mexico.....	71	6.94	Wyoming.....	29	4.37
Iowa.....	463	6.75	Nebraska.....	128	4.34
California.....	530	6.57	Virginia.....	235	4.22
Louisiana.....	328	6.34	Kansas.....	160	4.16
Idaho.....	79	6.33	Mississippi.....	152	4.03
Indiana.....	451	6.31	Alabama.....	194	3.74
South Dakota.....	130	6.26	Ohio.....	532	3.72
Illinois.....	1,069	5.96	Arizona.....	29	3.50
New York.....	1,525	5.91	South Carolina.....	133	3.38
Missouri.....	497	5.80	Delaware.....	17	3.36
Kentucky.....	362	5.66	State not specified.....	147	1.55
North Dakota.....	100	5.60			
Wisconsin.....	352	5.57	Total.....	15,076	5.47
Tennessee.....	336	5.49			



31. *Grand total of defects of ear and hearing, including complete deafness and deaf-mutism.*—This group comprises 21,187 cases or 7.69 per 1,000 men examined. Table 31 shows that, as in the case of defective hearing (which greatly influences the order of States in the table), defects are far commoner in New England than in any other section of the country. On the other hand, the States of the Southeast tend to lie at the bottom of the list. Here are found Alabama, South Carolina, Georgia, Mississippi, Florida, Arkansas; also Texas and North Carolina in the lower half of the list. In the upper half of the list one finds also certain States of the Northwest—Washington, Oregon, Utah, Nevada, South Dakota, and Colorado. The States of the Great Lakes region and of intermediate latitude occupy an intermediate position in the list. Thus, in the middle third, one finds New York, New Jersey, Ohio, Indiana, Illinois, Wisconsin, and Minnesota.

The reason for the relatively few defects of hearing and congenital defects in the Southern States is possibly due to the fact that a relatively small amount of inflammation of the middle ear occurs among the colored population. It is clear that the immigration from southeastern Europe, which has largely settled in New England and the Middle States, is to a marked extent responsible for the large amount of defective hearing found in these States. To this there must be added a tendency to hereditary defective hearing, found in many of the old families of the New England States, in which an inter-marriage of deaf-mutes has occurred, as Alexander Graham Bell has shown.

TABLE 31.—*Grand total for deaf and dumb, mute; deaf; defective hearing, with ratio per 1,000 men.*

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Maine.....	311	15.70	North Carolina.....	430	7.75
Vermont.....	125	14.85	Minnesota.....	552	7.67
Rhode Island.....	191	13.18	New Jersey.....	576	7.59
Connecticut.....	469	13.06	Idaho.....	94	7.53
Alaska.....	15	12.31	District of Columbia.....	86	7.46
New Hampshire.....	100	11.74	Virginia.....	411	7.38
Washington.....	389	10.94	Texas.....	857	7.23
Maryland.....	385	10.34	West Virginia.....	273	7.01
Oregon.....	162	10.12	Ohio.....	980	6.85
Massachusetts.....	921	10.08	Pennsylvania.....	1,386	6.81
Utah.....	117	9.94	Montana.....	187	6.82
Nevada.....	31	9.42	Michigan.....	616	6.53
Kentucky.....	593	9.27	Kansas.....	236	6.14
New Mexico.....	92	8.99	Nebraska.....	181	6.14
South Dakota.....	184	8.85	Arkansas.....	262	6.13
Colorado.....	196	8.71	Florida.....	145	6.02
Missouri.....	743	8.68	Mississippi.....	223	5.91
Louisiana.....	447	8.65	Wyoming.....	37	5.57
California.....	695	8.61	Georgia.....	338	5.29
Tennessee.....	526	8.59	South Carolina.....	203	5.16
Iowa.....	580	8.46	Delaware.....	25	4.95
Indiana.....	604	8.45	Alabama.....	213	4.69
New York.....	2,157	8.36	Arizona.....	32	3.86
Oklahoma.....	498	8.20	State not specified.....	159	1.67
Illinois.....	1,448	8.07			
Wisconsin.....	505	7.99			
North Dakota.....	141	7.90	Total.....	21,187	7.69

32. *Constitutional psychopathic state.*—This term is applied to persons who show a lack of emotional stability or of control of their conduct. The term is applied to relatively few people, mostly under

one per thousand. It was applied most commonly in the States of Vermont, Delaware, Maryland, and New York, least commonly in Arkansas, Washington, New Jersey, South Carolina, and Texas. The differences, however, between the different States is so slight that not much stress can be laid upon them. (Table 32.)

TABLE 32.—Grand total for constitutional psychopathic States, with ratio per 1,000 men; total rejections, D-Vg.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Vermont.....	9	0.96	Wyoming.....	3	0.34
New York.....	229	.75	Tennessee.....	24	.33
Utah.....	10	.70	Florida.....	9	.30
Georgia.....	50	.69	Arizona.....	3	.28
Maryland.....	31	.67	New Hampshire.....	3	.27
California.....	60	.63	Maine.....	6	.26
Alaska.....	1	.56	Kentucky.....	20	.25
District of Columbia.....	7	.53	Nevada.....	1	.24
Michigan.....	60	.53	North Carolina.....	16	.24
Oregon.....	10	.52	Louisiana.....	14	.23
Alabama.....	32	.51	Connecticut.....	10	.22
South Dakota.....	13	.51	Mississippi.....	10	.22
Colorado.....	14	.50	Montana.....	7	.21
Illinois.....	104	.49	South Carolina.....	9	.20
Missouri.....	52	.49	Indiana.....	17	.19
Iowa.....	.39	.48	Oklahoma.....	13	.18
Kansas.....	22	.47	Texas.....	26	.18
Rhode Island.....	7	.47	Delaware.....	1	.17
Pennsylvania.....	101	.44	New Jersey.....	15	.17
Virginia.....	28	.44	Washington.....	7	.17
Nebraska.....	16	.42	Arkansas.....	8	.15
West Virginia.....	19	.41	New Mexico.....	2	.15
Massachusetts.....	42	.39	Idaho.....	1	.07
Minnesota.....	32	.38	State not specified.....	124	2.61
Ohio.....	62	.36			
Wisconsin.....	29	.36			
North Dakota.....	8	.35	Total.....	1,436	.44

33. *Mental deficiency.*—This condition, generally causing rejection, was found by medical examination boards, at between 37 and 3 per thousand men in the different States. Table 33 and the graph Plate XXIV, figure 1 and Plate VI, figure 6, shows there was an exceptionally large proportion of mental deficiency found in registrants from the Southern States including Maryland, North Carolina, Tennessee, Virginia, Mississippi, Louisiana, South Carolina, and Alabama. This is undoubtedly due to the large number of colored persons among the registrants from these States. The smallest amount of mental deficiency is, on the other hand, found in Western States, such as Arizona, Nevada, Montana, Wyoming, Idaho, and Utah. These are States with very small colored population and also States into which the population has come rather recently from the East, leaving behind the defective to increase the proportion at large in the more eastern States.

Another reason why the proportion of mental defectives is commoner in the southern States, is that in those States the segregation of mental defectives into institutions has not occurred to the same extent that it has in the wealthier States of the northeast, such as New Jersey, Illinois, New York, Massachusetts, and Pennsylvania, all of which States lie in the lower half of the list.

TABLE 33.—Grand total for mental deficiency, with ratio per 1,000 men; total rejections,  $D+Vg$ .

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Vermont.....	291	30.90	New Hampshire.....	119	10.82
Maine.....	508	22.23	Florida.....	325	10.77
Maryland.....	1,013	21.92	Massachusetts.....	1,118	10.31
North Carolina.....	1,459	21.60	Connecticut.....	462	10.05
Tennessee.....	1,508	20.95	Texas.....	1,461	9.85
Virginia.....	1,299	20.59	Kansas.....	456	9.79
South Carolina.....	832	18.28	New York.....	2,813	9.24
Louisiana.....	1,104	17.92	Illinois.....	1,947	9.10
Mississippi.....	802	17.27	Oregon.....	164	8.59
Kentucky.....	1,220	15.22	Colorado.....	232	8.26
Rhode Island.....	228	15.18	Washington.....	341	8.22
Iowa.....	1,218	15.12	New Jersey.....	726	8.21
Alabama.....	932	14.91	District of Columbia.....	108	8.18
South Dakota.....	374	14.63	California.....	740	7.72
Missouri.....	1,470	13.90	Delaware.....	44	7.43
Wisconsin.....	1,083	13.61	Nebraska.....	280	7.37
New Mexico.....	178	13.18	Utah.....	103	7.21
Georgia.....	957	13.12	Idaho.....	105	6.88
Oklahoma.....	905	12.59	Alaska.....	9	5.04
Arkansas.....	657	12.11	Montana.....	138	4.09
Ohio.....	2,050	11.95	Wyoming.....	34	3.82
Indiana.....	1,047	11.79	Nevada.....	11	2.64
Michigan.....	1,275	11.37	Arizona.....	25	2.32
Minnesota.....	952	11.34	State not specified.....	671	14.13
North Dakota.....	253	11.17			
Pennsylvania.....	2,546	10.98	Total.....	39,095	12.06
West Virginia.....	502	10.92			

34. *Dementia præcox*.—The total amount of dementia præcox found at the medical examinations was not great for any State. The variations in this respect varied with the knowledge of the medical examiners on the one hand, and the thoroughness with which such defectives have been transferred from the general population to State care. Despite the fact that the Northern States are more progressive in providing institutional care for the insane, the proportion of cases of dementia præcox found were strikingly greater in these Northern States than in the South. Thus, at the very head of the list (Table 34, Pl. VII, fig. 3; Pl. XXIII, fig. 1) stands Massachusetts; then come such States as Connecticut, Illinois, New York, and Pennsylvania—States characterized by their great institutions for the insane. There is reason for believing that the recent immigration from Europe into these States has helped swell the proportion of the insane in them. This may be in part an explanation of the high ratio of dementia præcox in such States. On the other hand, it must not be forgotten in just these States, where most attention has been paid in the past to the insane, the physicians were best trained in its discovery and were most apt to record cases. The Southern States for the most part recorded a relatively small amount of dementia præcox. Thus, in the lower half of the list lie Kentucky, Arkansas, North Carolina, and Virginia. However, despite the fact that the local board examiners in the Southern States were probably less well trained to observe dementia præcox than those of the Northern States, still a large proportion of this defect was found in Florida, Mississippi, and Georgia.



TABLE 34.—Grand total for dementia præcox, with ratio per 1,000 men; total rejections, D+Vg.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Massachusetts.....	170	1.57	Virginia.....	30	0.48
Connecticut.....	54	1.17	Oklahoma.....	33	.46
Vermont.....	9	.96	Indiana.....	40	.45
Illinois.....	181	.85	New Hampshire.....	5	.45
Iowa.....	67	.83	Washington.....	17	.41
New York.....	251	.82	North Carolina.....	26	.38
Maryland.....	34	.74	Tennessee.....	27	.38
Florida.....	22	.73	Arkansas.....	20	.37
Pennsylvania.....	170	.73	Kansas.....	17	.36
North Dakota.....	16	.71	Missouri.....	37	.35
Michigan.....	77	.69	Delaware.....	2	.34
Minnesota.....	58	.69	Idaho.....	5	.33
Mississippi.....	32	.69	Oregon.....	6	.31
Georgia.....	49	.67	South Dakota.....	8	.31
Nebraska.....	24	.63	West Virginia.....	13	.28
California.....	58	.61	Maine.....	5	.22
Alabama.....	37	.59	Kentucky.....	16	.20
Alaska.....	1	.56	Rhode Island.....	3	.20
New Jersey.....	49	.55	Arizona.....	2	.19
South Carolina.....	25	.55	District of Columbia.....	2	.15
Texas.....	82	.55	Montana.....	5	.15
Louisiana.....	32	.52	New Mexico.....	2	.15
Colorado.....	14	.50	Wyoming.....	1	.11
Utah.....	7	.49	State not specified.....	133	2.80
Wisconsin.....	39	.49			
Ohio.....	83	.48	Total.....	2,096	.65

## 35. Psychasthenia and psychoneurosis. (See Table 35.)

TABLE 35.—Grand total for psychasthenia and psychoneurosis, with ratio per 1,000 men; total rejections, D+Vg.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Alabama.....	82	2.31	Arkansas.....	17	0.32
South Carolina.....	80	1.75	Nebraska.....	12	.32
North Carolina.....	75	1.11	New Jersey.....	28	.32
Oregon.....	18	.95	South Dakota.....	8	.31
Missouri.....	88	.84	Montana.....	10	.30
Wyoming.....	7	.78	Indiana.....	21	.24
Georgia.....	50	.68	Kentucky.....	19	.24
Illinois.....	140	.65	Washington.....	10	.24
Florida.....	19	.63	North Dakota.....	5	.22
Mississippi.....	29	.63	Arizona.....	2	.19
District of Columbia.....	8	.61	Connecticut.....	9	.19
Rhode Island.....	9	.60	Oklahoma.....	14	.19
Massachusetts.....	62	.57	New Hampshire.....	2	.18
New York.....	169	.56	Texas.....	24	.16
Kansas.....	26	.56	Virginia.....	10	.16
Maryland.....	26	.56	New Mexico.....	2	.15
California.....	51	.54	West Virginia.....	6	.13
Tennessee.....	37	.51	Maine.....	2	.09
Colorado.....	14	.50	Idaho.....	1	.07
Louisiana.....	31	.50	Alaska.....		
Minnesota.....	41	.49	Delaware.....		
Pennsylvania.....	99	.43	Nevada.....		
Iowa.....	34	.42	Vermont.....		
Utah.....	6	.42	State not specified.....	123	2.59
Michigan.....	42	.37			
Ohio.....	64	.37	Total.....	1,660	.51
Wisconsin.....	28	.36			

36. *Manic-depressive psychosis*.—This form of insanity was found a slightly less rate than dementia præcox (Table 36; Pl. VII, fig. 4; Pl. XXIII, fig. 2). Its distribution was not very different from that of dementia præcox. Massachusetts and Connecticut, which are first on the list in dementia præcox, here drop to twelfth and third places, respectively. New York comes sixth on both lists, and Pennsylvania occupies a more median position in manic-depressive psychosis than in dementia præcox.

TABLE 36.—Grand total for psychosis, manic-depressive, with ratio per 1,000 men; total rejections, D+Vg.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Vermont.....	13	1.38	Washington.....	6	0.14
Wisconsin.....	41	.52	Idaho.....	2	.13
Maryland.....	14	.30	Rhode Island.....	2	.13
Connecticut.....	13	.28	West Virginia.....	6	.13
New York.....	77	.25	Kentucky.....	10	.12
Nevada.....	1	.24	Minnesota.....	10	.12
Georgia.....	17	.23	Arkansas.....	6	.11
Michigan.....	26	.23	California.....	11	.11
Maine.....	5	.22	South Carolina.....	5	.11
New Jersey.....	19	.21	Wyoming.....	1	.11
Alabama.....	12	.19	Iowa.....	8	.10
Illinois.....	40	.19	Arizona.....	1	.09
Massachusetts.....	21	.19	North Dakota.....	2	.09
Tennessee.....	14	.19	Louisiana.....	5	.08
Colorado.....	5	.18	Nebraska.....	3	.08
Montana.....	6	.18	Texas.....	12	.08
New Hampshire.....	2	.18	Indiana.....	4	.05
Florida.....	5	.17	Oregon.....	1	.05
Pennsylvania.....	40	.17	Missouri.....	4	.04
North Carolina.....	11	.16	Kansas.....	2	.04
Mississippi.....	7	.15	South Dakota.....	1	.04
New Mexico.....	2	.15	State not specified.....	45	.95
Ohio.....	26	.15			
Oklahoma.....	10	.14	Total.....	583	.18
Virginia.....	9	.14			

In the latter half of the list lie such Southern States as Virginia, South Carolina, Louisiana, and Texas; in the upper half of the table such Southern States as Georgia, Alabama, Florida, and North Carolina. The significance of the geographical distribution of manic-depressive psychosis is thus not very clear, probably owing to the variety of factors, medical, social, and biological, which influence it.

### 37. General paralysis of the insane. (See Table 37.)

TABLE 37.—Grand total for general paralysis of the insane, psychosis, manic-depressive psychoses other, with ratio per 1,000 men; total rejections, D+Vg.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Vermont.....	35	3.72	Colorado.....	25	0.89
Alaska.....	5	2.80	Oregon.....	16	.84
Kansas.....	124	2.66	Louisiana.....	52	.84
Washington.....	102	2.46	Alabama.....	52	.83
Ohio.....	397	2.31	New Hampshire.....	9	.82
New York.....	635	2.09	Missouri.....	87	.82
Rhode Island.....	30	2.00	Indiana.....	71	.80
Nebraska.....	70	1.84	New Mexico.....	10	.74
Maine.....	40	1.75	Minnesota.....	61	.73
Connecticut.....	75	1.63	Georgia.....	53	.73
Massachusetts.....	169	1.56	West Virginia.....	32	.69
Virginia.....	98	1.55	Michigan.....	75	.66
Tennessee.....	107	1.49	New Jersey.....	55	.62
Iowa.....	120	1.48	North Dakota.....	13	.57
South Dakota.....	35	1.37	District of Columbia.....	7	.53
Oklahoma.....	97	1.34	Florida.....	14	.47
Illinois.....	276	1.29	Arkansas.....	25	.47
Kentucky.....	98	1.22	Idaho.....	7	.46
Maryland.....	55	1.19	Utah.....	6	.42
California.....	113	1.18	Mississippi.....	18	.39
Wisconsin.....	92	1.16	Montana.....	11	.35
Delaware.....	6	1.02	Nevada.....	1	.24
Arizona.....	11	1.02	Wyoming.....	1	.11
Pennsylvania.....	230	.99	State not specified.....	52	1.10
North Carolina.....	67	.99			
South Carolina.....	44	.96	Total.....	4,018	1.24
Texas.....	134	.90			

38. *Grand total—for constitutional psychopathic states, mental deficiency, dementia praecox, psychasthenia, psychoneuroses, manic-depressive psychosis, and other psychoses.*—This large group comprises 49,541 cases, or 18.1 per 1,000 of the men examined. The distribution of this group by States is given in Table 38 (Pl. VII, fig. 6; Pl. XXIV, fig. 3). A consideration of the table and charts shows that the principal center of this group is in the States of the Southeast. This is probably because the large group of mental deficiency controls, and that is especially prevalent in the Southeast. The order of the States in the lists of Table 38 and Table 33 runs ordinarily close. In Table 38 South Carolina exchanges places with Mississippi; Wisconsin assumes a higher place, above New Mexico; Arkansas drops below New Hampshire; Connecticut and Massachusetts take a much higher rank in Table 38 than in Table 33; and Texas takes a lower rank. In the States which assume a higher rank in Table 38 than they do in Table 33 it is clear that the psychoses are relatively more important than mental deficiency.

TABLE 38.—*Grand total for mental alienation, with ratio per 1,000 men; total rejections, D+Vg.*

States.	Number of cases.	Ratio per 1,000.	States.	Number of cases.	Ratio per 1,000.
Vermont.....	357	37.92	Arkansas.....	733	13.53
Maryland.....	1,473	25.38	Indiana.....	1,200	13.52
Maine.....	566	24.77	North Dakota.....	297	13.11
North Carolina.....	1,654	24.48	Florida.....	394	13.07
Tennessee.....	1,717	23.85	New Hampshire.....	140	12.07
Virginia.....	1,474	23.36	Illinois.....	2,688	12.57
South Carolina.....	995	21.85	West Virginia.....	578	12.56
Louisiana.....	1,738	20.09	Texas.....	1,739	11.72
Mississippi.....	808	19.35	Washington.....	483	11.64
Rhode Island.....	279	18.58	Oregon.....	215	11.26
Iowa.....	1,486	18.43	Colorado.....	304	10.83
Alabama.....	1,147	18.34	California.....	1,033	10.79
Kentucky.....	1,383	17.25	Nebraska.....	405	10.66
South Dakota.....	439	17.17	New Jersey.....	892	10.08
Wisconsin.....	1,312	16.50	District of Columbia.....	132	10.00
Missouri.....	1,738	16.44	Utah.....	132	9.24
Georgia.....	1,176	16.12	Alaska.....	16	8.96
Ohio.....	2,682	15.62	Delaware.....	53	8.96
Oklahoma.....	1,072	14.90	Idaho.....	121	7.94
Massachusetts.....	1,582	14.59	Wyoming.....	47	5.27
New Mexico.....	196	14.52	Montana.....	177	5.26
Kansas.....	647	13.88	Arizona.....	44	4.09
Michigan.....	1,555	13.85	Nevada.....	14	3.36
Minnesota.....	1,154	13.75	State not specified.....	1,148	24.18
Pennsylvania.....	3,186	13.74			
New York.....	4,174	13.71			
Connecticut.....	623	13.54	Total.....	48,888	15.08

39. *Myopia.*—As Table 39, Plate X, figure 1, and Plate XXVII, figure 1, show, myopia is prevalingly a defect of the northeastern part of the country. New York stands almost in a class by itself at the head of the list. Pennsylvania, Massachusetts, Connecticut, New Jersey, and Rhode Island follow. Then come some of the more populous States, like Illinois, Michigan, Ohio. The Southern States are nearly all in the lower half of the list—Mississippi, Georgia, Alabama, North Carolina, Tennessee, Texas, Louisiana, and Florida. This difference in the proportion of myopia is probably largely racial. It is well known that certain stocks inhabiting especially the cities of the Northeast are affected with wide spread myopia. This is especially true of the German, Polish, and Austrian Jews. On the other hand, relatively little myopia is found among



the Negroes, which forms such a prominent part of the southern registration.

TABLE 39.—Grand total for myopia, with ratio per 1,000 men.

States.	Number of cases.	Ratio per 1,000.	States.	Number of cases.	Ratio per 1,000.
New York.....	2,140	8.30	South Carolina.....	55	1.40
Pennsylvania.....	965	4.77	Florida.....	31	1.27
Massachusetts.....	430	4.71	Washington.....	45	1.29
Connecticut.....	162	4.51	Nevada.....	4	1.22
New Jersey.....	289	3.81	Louisiana.....	60	1.16
Rhode Island.....	53	3.66	South Dakota.....	24	1.16
Maryland.....	133	3.57	Nebraska.....	31	1.05
Illinois.....	580	3.23	Kansas.....	37	.96
Michigan.....	304	3.07	Minnesota.....	69	.96
Delaware.....	15	2.97	Texas.....	114	.96
Ohio.....	403	2.82	Tennessee.....	58	.95
California.....	227	2.81	Arkansas.....	40	.94
Wisconsin.....	170	2.69	North Carolina.....	52	.94
Missouri.....	222	2.59	Oklahoma.....	54	.89
Virginia.....	140	2.52	Idaho.....	11	.88
District of Columbia.....	28	2.43	Alabama.....	44	.85
Maine.....	48	2.42	North Dakota.....	14	.78
Vermont.....	20	2.38	Georgia.....	49	.77
New Hampshire.....	18	2.11	Utah.....	9	.76
West Virginia.....	82	2.11	Arizona.....	6	.72
Indiana.....	145	2.03	Montana.....	19	.69
New Mexico.....	20	1.95	Mississippi.....	22	.58
Colorado.....	43	1.91	Wyoming.....	3	.45
Oregon.....	28	1.75	State not specified.....	127	1.34
Kentucky.....	105	1.64			
Iowa.....	101	1.47	Total.....	7,849	2.85

40. *Total defective vision, cause not stated; astigmatism; hyperopia.*—This grouping of defective visions of different types has an interesting geographical distribution. As with myopia, so in this more extensive table we find that the States of the Northeast stand at the head of the list. The highest ratios are found in Rhode Island, Connecticut, Massachusetts, Maine, Vermont, New York, and New Hampshire. On the other hand, relatively little defective vision was found in South Carolina, Alabama, Texas, Mississippi, Florida, Georgia, Kentucky, Louisiana, North Carolina, Virginia, and Arkansas. The agricultural States of the Middle West stand in an intermediate position.

TABLE 40.—Grand total for defective vision (cause not stated), astigmatism, hyperopia, with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Rhode Island.....	876	60.42	North Dakota.....	447	25.03
Connecticut.....	2,139	59.55	Idaho.....	311	24.90
Massachusetts.....	5,312	58.13	West Virginia.....	959	24.65
Maine.....	1,129	56.95	Minnesota.....	1,769	24.59
Vermont.....	458	54.43	Utah.....	286	24.30
New York.....	12,385	48.03	Ohio.....	3,443	24.10
New Hampshire.....	377	44.24	Arkansas.....	999	23.41
Maryland.....	1,513	40.66	Virginia.....	1,295	23.26
Wisconsin.....	2,128	33.67	North Carolina.....	1,255	22.66
Alaska.....	41	33.66	Louisiana.....	1,163	22.48
New Jersey.....	2,488	32.77	Kentucky.....	1,431	22.39
California.....	2,624	32.53	Georgia.....	1,394	21.84
Illinois.....	5,723	31.91	Florida.....	524	21.72
Pennsylvania.....	6,162	30.46	Wyoming.....	144	21.70
Missouri.....	2,596	30.32	Delaware.....	109	21.56
Washington.....	1,078	30.32	Oklahoma.....	1,303	21.45
Michigan.....	2,925	29.56	Mississippi.....	799	21.21
District of Columbia.....	337	29.20	Nebraska.....	608	20.62
Oregon.....	458	28.62	Kansas.....	776	20.20
Nevada.....	91	27.64	Texas.....	2,292	19.33
South Dakota.....	550	26.48	Alabama.....	908	17.52
Colorado.....	594	26.40	South Carolina.....	687	17.44
Tennessee.....	1,614	26.37	Arizona.....	112	13.50
New Mexico.....	264	25.81	State not specified.....	1,684	17.74
Montana.....	702	25.59			
Indiana.....	1,819	25.43	Total.....	82,814	30.07
Iowa.....	1,733	25.28			

41. *Grand total for myopia and defective vision, astigmatism, and hyperopia.*—The correctable defects of vision included in this group are fairly numerous, including 90,663 cases, making 32.9 per 1,000 men examined. In this group defective vision, cause not stated, astigmatism, and hyperopia are numerically relatively more important than the group of myopia, and consequently the distribution of these cases as given in Table 30 largely controls in Table 41. Only a few shifts occur in the order of States given in Table 41 as compared with 30; and these shifts are due to the relative importance of myopia in these States, as compared with other correctable defects. Thus, in Table 41, as compared with Table 30, Maryland takes precedence over New Hampshire; New Jersey surpasses Wisconsin; Pennsylvania surpasses Illinois; Michigan ranks above Washington, and Colorado surpasses South Dakota; Tennessee takes inferior rank; Ohio advances 8 points; Virginia advances 4 points, while North Carolina stands 3 lower on the list. For the rest, the shifts are minor ones. Here, again, as in general correctable eye defects, excepting myopia (Table 30), we find the New England and Middle States to be the centers of remediable defects of the eye.

TABLE 41.—*Grand total for myopia and defective vision, cause not stated, astigmatism, and hyperopia, with ratio per 1,000 men.*

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Rhode Island.....	929	64.08	Iowa.....	1,834	26.75
Connecticut.....	2,301	64.06	Montana.....	721	26.28
Massachusetts.....	5,742	62.84	North Dakota.....	461	25.81
Maine.....	1,177	59.37	Idaho.....	322	25.78
Vermont.....	478	56.81	Virginia.....	1,435	25.78
New York.....	14,525	56.33	Minnesota.....	1,838	25.55
Maryland.....	1,646	44.23	Utah.....	295	25.06
New Hampshire.....	395	43.35	Delaware.....	124	24.53
New Jersey.....	2,777	36.58	Arkansas.....	1,039	24.35
Wisconsin.....	2,298	36.36	Kentucky.....	1,536	24.03
California.....	2,851	35.34	Louisiana.....	1,223	23.64
Pennsylvania.....	7,127	35.23	North Carolina.....	1,307	23.60
Illinois.....	6,303	35.14	Florida.....	555	23.01
Alaska.....	41	33.66	Georgia.....	1,443	22.61
Missouri.....	2,818	32.91	Oklahoma.....	1,357	22.34
Michigan.....	3,229	32.63	Wyoming.....	147	22.15
District of Columbia.....	365	31.63	Mississippi.....	821	21.79
Washington.....	1,123	31.59	Nebraska.....	639	21.67
Oregon.....	486	30.37	Kansas.....	813	21.16
Nevada.....	95	28.86	Texas.....	2,406	20.29
Colorado.....	637	28.31	South Carolina.....	742	18.84
New Mexico.....	284	27.76	Alabama.....	952	18.37
South Dakota.....	574	27.64	Arizona.....	118	14.22
Indiana.....	1,964	27.46	State not specified.....	1,811	19.28
Tennessee.....	1,672	27.32			
Ohio.....	3,846	26.92	Total.....	90,663	32.92
West Virginia.....	1,041	26.76			

42. *Trachoma.*—This highly contagious disease of the eyelids ranges in frequency in the different States from about 8 per thousand to one-tenth per thousand. Oklahoma and Kentucky stand remarkably high in the list. North Dakota comes third and then follow certain Southern States: Missouri, Arkansas, and Texas. On the whole, this disease is found in rural States and somewhat more frequently in the South than in the northern part of the country. The smallest amount of trachoma was found in Maine, New Hampshire, Georgia, Maryland, Delaware, Massachusetts, Vermont, Pennsylvania—States of the Atlantic coast—some southern but mostly northern. In the intermediate or lower position stand the more densely

populated States of Massachusetts (0.3 per mille), Pennsylvania (0.4 per mille), Ohio (0.4 per mille), Connecticut (0.5 per mille), New Jersey (0.6 per mille). It is possible that the generally higher level of sanitation in the North, and especially in the more densely populated States, has had much to do in keeping down trachoma, despite what is being brought into the country through recent immigrants, who have settled largely in the northern tier of States.

TABLE 42.—Grand total for trachoma with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Oklahoma.....	499	8.21	Montana.....	18	0.66
Kentucky.....	511	7.99	Minnesota.....	43	.60
North Dakota.....	85	4.76	New Jersey.....	44	.68
Missouri.....	270	3.15	South Carolina.....	23	.58
Arkansas.....	130	3.05	Virginia.....	31	.56
Texas.....	290	2.45	Florida.....	13	.54
South Dakota.....	50	2.41	North Carolina.....	28	.51
New Mexico.....	22	2.15	Utah.....	6	.51
Nevada.....	7	2.13	Mississippi.....	19	.50
West Virginia.....	78	2.00	Michigan.....	48	.49
Arizona.....	16	1.93	Connecticut.....	17	.47
Indiana.....	130	1.82	Wisconsin.....	30	.47
Illinois.....	312	1.74	Ohio.....	62	.43
Tennessee.....	104	1.70	Pennsylvania.....	78	.39
Rhode Island.....	20	1.38	Vermont.....	3	.36
Nebraska.....	40	1.36	Massachusetts.....	27	.30
New York.....	314	1.22	Wyoming.....	2	.30
Idaho.....	15	1.20	District of Columbia.....	3	.26
Kansas.....	42	1.09	Delaware.....	1	.20
Colorado.....	20	.89	Maryland.....	6	.26
Alaska.....	1	.82	Georgia.....	9	.14
Alabama.....	42	.81	New Hampshire.....	1	.12
California.....	64	.79	Maine.....	2	.10
Iowa.....	54	.79	State not specified.....	71	.75
Louisiana.....	39	.75			
Washington.....	25	.70			
Oregon.....	11	.69			
			Total.....	3,776	1.37

43. *Amblyopia*.—This condition of “functional” blindness was not detected in a great number of registrants. Its distribution is irregular and probably depended as much upon the training of the medical examiners as upon any biological factors present.

TABLE 43.—Grand total for amblyopia, with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Texas.....	248	2.09	Vermont.....	7	0.83
District of Columbia.....	22	1.91	Alaska.....	1	.82
West Virginia.....	71	1.82	California.....	61	.76
Rhode Island.....	24	1.66	Connecticut.....	27	.75
Missouri.....	138	1.61	Florida.....	18	.75
New York.....	397	1.54	Indiana.....	54	.75
Pennsylvania.....	308	1.52	New Jersey.....	56	.74
Maryland.....	54	1.45	Arkansas.....	29	.68
Ohio.....	196	1.37	South Carolina.....	26	.66
Virginia.....	68	1.22	Wyoming.....	4	.60
Oregon.....	19	1.19	Delaware.....	3	.59
North Dakota.....	21	1.18	Montana.....	16	.58
Kansas.....	45	1.17	Tennessee.....	34	.56
Michigan.....	114	1.15	Georgia.....	33	.52
Wisconsin.....	71	1.12	Utah.....	6	.51
Oklahoma.....	62	1.02	Maine.....	10	.50
Nebraska.....	29	.98	Arizona.....	4	.48
Alabama.....	50	.96	Idaho.....	6	.48
South Dakota.....	20	.96	Louisiana.....	25	.48
New Hampshire.....	8	.94	Mississippi.....	16	.42
Massachusetts.....	85	.93	Washington.....	15	.42
Illinois.....	163	.91	Minnesota.....	29	.40
Iowa.....	62	.90	Nevada.....	1	.30
Colorado.....	20	.89	State not specified.....	58	.61
Kentucky.....	57	.89			
New Mexico.....	9	.88			
North Carolina.....	47	.85			
			Total.....	2,947	1.07



TABLE 44.—Grand total for eye enucleation of, blindness in one eye, blindness in both eyes, with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Tennessee.....	767	12.53	Washington.....	271	7.63
Kentucky.....	788	12.33	Alabama.....	386	7.45
Alaska.....	15	12.32	Montana.....	204	7.45
Louisiana.....	617	11.93	California.....	600	7.44
New Mexico.....	120	11.73	Pennsylvania.....	1,493	7.38
Texas.....	1,316	11.10	District of Columbia.....	85	7.36
Georgia.....	691	10.82	Idaho.....	92	7.36
Virginia.....	602	10.82	South Dakota.....	152	7.31
Oklahoma.....	654	10.77	New Hampshire.....	60	7.04
Mississippi.....	394	10.46	Iowa.....	475	6.93
Florida.....	247	10.24	Nebraska.....	204	6.92
West Virginia.....	391	10.05	Massachusetts.....	631	6.91
Utah.....	114	9.68	Connecticut.....	244	6.80
Oregon.....	151	9.44	Maine.....	133	6.71
Vermont.....	79	9.38	Ohio.....	943	6.60
Maryland.....	339	9.12	Colorado.....	148	6.59
North Dakota.....	160	8.96	New Jersey.....	495	6.53
Rhode Island.....	125	8.62	New York.....	1,652	6.41
Nevada.....	28	8.51	Arizona.....	50	6.03
Indiana.....	595	8.31	Missouri.....	509	5.94
Arkansas.....	347	8.12	Delaware.....	27	5.34
Illinois.....	1,441	8.04	Wisconsin.....	323	5.11
Wyoming.....	53	7.99	South Carolina.....	197	5.00
North Carolina.....	442	7.98	State not specified.....	56	.59
Minnesota.....	557	7.74			
Michigan.....	765	7.73	Total.....	21,521	7.81
Kansas.....	293	7.63			

45. *Grand total of all eye defects, including blindness in one or both eyes.*—This group includes 112,184 cases, or 40.7 per 1,000 men examined. The distribution by States is shown in Table 45 and Plate XXVIII and figure 2. An examination of the table and charts shows that the distribution of this group is largely controlled by the correctable defects of the eye as given in Table 31a. However, there are a few changes in the rank of the States due to the relatively greater importance of the blindness in one or both eyes over corrective defects. Thus in Table 45 as contrasted with 41, we find Vermont passes above Maine; Illinois passes above California and Pennsylvania; Michigan passes above Missouri, which latter State drops six places in rank. Colorado assumes a much lower position and Tennessee advances nine points. Ohio moves eight toward the bottom of the list. Idaho moves down seven places and Virginia moves up eight places. Delaware moves down ten places and Kentucky up twelve places (on account of prevalence of trachoma). The remaining changes in rank are minor ones.

TABLE 45.—Grand total for myopia, defective vision, cause not stated—astigmatism, hyperopia, eye enucleation of, blindness in one eye, blindness in both eyes, with ration per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Rhode Island.....	1,054	72.70	South Dakota.....	726	34.95
Connecticut.....	2,545	70.86	Colorado.....	785	34.90
Massachusetts.....	6,373	69.75	North Dakota.....	621	34.77
Vermont.....	557	66.19	Utah.....	409	34.74
Maine.....	1,310	66.08	Montana.....	925	33.73
New York.....	16,177	62.74	Iowa.....	2,309	33.68
Maryland.....	1,985	53.35	Ohio.....	4,789	33.52
New Hampshire.....	455	50.39	Georgia.....	2,134	33.43
Alaska.....	56	45.98	Minnesota.....	2,395	33.29
Illinois.....	7,744	43.18	Florida.....	802	33.25
New Jersey.....	3,272	43.11	Idaho.....	414	33.14
California.....	3,451	42.78	Oklahoma.....	2,011	33.11
Pennsylvania.....	8,620	42.61	Arkansas.....	1,386	32.47
Wisconsin.....	2,621	41.47	Mississippi.....	1,215	32.25
Michigan.....	3,994	40.36	North Carolina.....	1,749	31.58
Tennessee.....	2,439	39.85	Texas.....	3,722	31.39
Oregon.....	637	39.81	Wyoming.....	200	30.14
New Mexico.....	404	39.49	Delaware.....	151	29.87
Washington.....	1,394	39.22	Kansas.....	1,106	28.79
District of Columbia.....	450	38.99	Nebraska.....	843	28.59
Missouri.....	3,327	38.85	Alabama.....	1,338	25.82
Nevada.....	123	37.37	South Carolina.....	939	23.84
West Virginia.....	1,432	36.81	Arizona.....	168	20.25
Virginia.....	2,037	36.60	State not specified.....	1,867	19.87
Kentucky.....	2,324	36.36			
Indiana.....	2,559	35.77			
Louisiana.....	1,840	35.57			
			Total.....	112,184	40.74

46. *Otitis media and perforated ear drum.*—The distribution of this disease is clearly shown in Plate XXVI, figure 1. It occurs much more commonly in New York than in any other State, then follow Rhode Island, Maine, New Jersey, California, Massachusetts, Pennsylvania, and Connecticut. On the other hand, the Southern States show a very small amount of otitis media.

The foregoing result is in part clearly due to the differences in the constitution of the population of the North as contrasted with the Southern States. To the North have come many recent immigrants from unsanitary sections of Europe, and these show an extraordinarily large number of cases of inflammation of the middle ear. Thus, the high ratio for otitis media from New York State is largely due to the examinations at Camp Upton, which drew from New York City, and those from the other Northeastern States are largely due to the high proportion of the disease found at Camp Devens. The disease is easily detected and hence its greater incidence in the Northern States is only in small part due to the greater thoroughness of the examination in the camps to which these States were tributary. On the other hand, the small amount of otitis media in Florida, Georgia, the Carolinas, Alabama, Arkansas, and Virginia is in part due to the relative freedom from otitis media of the colored part of the population.<sup>1</sup>

<sup>1</sup> Report of Surgeon General, United States Army, 1918, Table XV. This gives the ratio of admission to sick report on account of otitis media as 10.64 per 1,000 of mean strength for whites and 5.48 per 1,000 mean strength for colored.

TABLE 46.—Grand total for otitis media, perforated ear drum, with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
New York.....	4,552	17.66	Minnesota.....	493	6.86
Rhode Island.....	212	14.63	Kentucky.....	435	6.80
Maine.....	262	13.21	Oklahoma.....	403	6.63
New Jersey.....	992	13.07	West Virginia.....	258	6.63
California.....	1,003	12.44	Iowa.....	440	6.42
Massachusetts.....	1,126	12.32	Indiana.....	441	6.16
Pennsylvania.....	2,400	11.87	Wyoming.....	40	6.02
Alaska.....	13	10.67	Tennessee.....	358	5.85
Connecticut.....	377	10.50	South Dakota.....	116	5.58
Nevada.....	34	10.32	Delaware.....	27	5.34
Washington.....	366	10.29	District of Columbia.....	58	5.03
Utah.....	114	9.69	Texas.....	558	4.71
Michigan.....	953	9.63	Kansas.....	163	4.24
Maryland.....	350	9.41	Louisiana.....	215	4.15
New Hampshire.....	80	9.39	Mississippi.....	155	4.11
Illinois.....	1,662	9.27	Nebraska.....	119	4.04
North Dakota.....	161	9.02	Virginia.....	207	3.72
Wisconsin.....	564	8.92	Arkansas.....	155	3.63
Colorado.....	196	8.72	Alabama.....	162	3.13
New Mexico.....	85	8.31	North Carolina.....	153	2.77
Montana.....	225	8.21	South Carolina.....	101	2.56
Vermont.....	69	8.20	Georgia.....	156	2.44
Oregon.....	129	8.06	Florida.....	58	2.40
Ohio.....	1,128	7.89	State not specified.....	467	4.92
Missouri.....	669	7.82			
Idaho.....	91	7.29	Total.....	23,608	8.57
Arizona.....	57	6.87			

47. *Deviation of the nasal septum, and hypertrophy of the turbinates.*—These defects were noted in only a relatively small number of cases and in four States in none at all. The largest number of cases was found in Connecticut (1.17 per 1,000 men). As is apt to be the case where the number of cases found in each State is small, the distribution has no great significance.

TABLE 47.—Grand total for deviation of the nasal septum, hypertrophy of turbinate, with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Connecticut.....	42	1.17	Wisconsin.....	14	.22
Colorado.....	20	.89	California.....	17	.21
New Hampshire.....	7	.82	Kansas.....	8	.21
Oregon.....	12	.75	Missouri.....	17	.20
Delaware.....	3	.59	New Mexico.....	2	.20
Vermont.....	5	.59	Maryland.....	7	.19
North Carolina.....	32	.58	Minnesota.....	14	.19
Massachusetts.....	51	.55	Montana.....	5	.18
Rhode Island.....	7	.48	Virginia.....	10	.18
Pennsylvania.....	95	.47	District of Columbia.....	2	.17
Oklahoma.....	21	.35	Nebraska.....	5	.17
North Dakota.....	6	.34	Illinois.....	29	.16
Utah.....	4	.34	West Virginia.....	6	.15
New Jersey.....	23	.31	Mississippi.....	5	.14
Iowa.....	21	.30	Washington.....	5	.14
Nevada.....	1	.30	South Carolina.....	5	.13
Arkansas.....	12	.28	Arizona.....	1	.12
Georgia.....	18	.28	Florida.....	3	.12
Tennessee.....	17	.28	Kentucky.....	8	.12
Alabama.....	14	.27	Ohio.....	16	.11
New York.....	66	.26	Idaho.....	1	.08
Indiana.....	17	.24	State not specified.....	43	.45
Louisiana.....	12	.23			
Michigan.....	22	.22	Total.....	777	.28
Texas.....	26	.22			



48. *Sinusitis*.—This inflammation of the sinuses of the head, largely due to focal infection, is widespread, but appropriate means were usually not at hand to detect the presence of the disease. The presence of this disease was not recorded in the States of Delaware and Arizona. In a great majority of the States less than one-half per thousand of the registrants were stated to have this disease. The highest incidence was in a group of States (Virginia, West Virginia, and Pennsylvania) that was tributary to Camp Lee—a camp in which there was an examiner who took a special interest in detecting this defect. This was probably the only reason why these States stand at the head of the list.

TABLE 48.—Grand total for sinusitis, with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Virginia.....	153	2.75	South Dakota.....	7	0.34
West Virginia.....	84	2.16	Kentucky.....	21	.33
Pennsylvania.....	335	1.66	Texas.....	38	.32
California.....	72	.89	Connecticut.....	11	.31
Vermont.....	7	.83	Washington.....	11	.31
Alaska.....	1	.82	Nevada.....	1	.30
District of Columbia.....	8	.69	Wyoming.....	2	.30
Oregon.....	10	.62	Iowa.....	19	.28
Maryland.....	21	.56	Illinois.....	48	.27
Rhode Island.....	7	.48	Tennessee.....	16	.26
Massachusetts.....	43	.47	Indiana.....	18	.25
New York.....	121	.47	Idaho.....	3	.24
Oklahoma.....	28	.46	Florida.....	5	.21
South Carolina.....	18	.46	Kansas.....	8	.21
North Carolina.....	25	.45	Louisiana.....	11	.21
Wisconsin.....	28	.44	Maine.....	4	.20
Georgia.....	27	.42	Minnesota.....	13	.18
Utah.....	5	.42	Arkansas.....	7	.16
Montana.....	11	.40	Mississippi.....	5	.13
New Mexico.....	4	.39	Alabama.....	6	.12
North Dakota.....	7	.39	New Hampshire.....	1	.12
Ohio.....	54	.38	Nebraska.....	2	.07
New Jersey.....	28	.37	State not specified.....	12	.13
Colorado.....	8	.36			
Michigan.....	36	.36			
Missouri.....	30	.35			
			Total.....	1,440	.52

49. *Hypertrophic tonsillitis*.—This was one of the most common defects noted. In amount it varied from 46 per mille in the Virginias, to less than 10 per mille in Maryland and South Carolina. The high rate in the Virginias and Pennsylvania must again be ascribed to the thoroughness of the throat and ear examiners at Camp Lee. The small amount of it in registrants from Maryland is doubtless due to the comparative lack of criticalness in the throat examiners at Camp Meade. Indeed, since tonsillitis was not a ground for rejection at local boards, the fluctuations in its occurrence by States was probably due more to the idiosyncrasies of camp examiners than to any one factor. However, certain significant biological results appear. Thus, tonsillitis was exceptionally common in Oklahoma and Mississippi, States tributary to different National Army camps. Also, the amount of tonsillitis found in recruits from Connecticut, Massachusetts, and Maine varied greatly, though the men from these States were all examined at Camp Devens. It seems possible, therefore, that certain racial or meteorological conditions are responsible for some of these variations, but just what they are is yet to be stated.

TABLE 49.—Grand total for tonsillitis, hypertrophic with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
West Virginia.....	1,794	46.10	Washington.....	718	20.20
Virginia.....	2,549	45.81	North Dakota.....	340	19.03
Arkansas.....	1,856	43.48	Arizona.....	157	18.93
Pennsylvania.....	8,510	42.08	Indiana.....	1,343	18.78
Oklahoma.....	2,267	37.31	New Hampshire.....	158	18.54
Wyoming.....	234	35.26	Missouri.....	1,534	17.92
Mississippi.....	1,238	32.86	Nevada.....	58	17.62
New Mexico.....	335	32.74	Illinois.....	3,148	17.56
Colorado.....	682	30.32	Montana.....	478	17.43
Oregon.....	481	30.06	Nebraska.....	509	17.27
Connecticut.....	1,061	29.54	Tennessee.....	1,056	17.25
California.....	2,216	27.47	Florida.....	376	15.59
New Jersey.....	2,055	27.07	South Dakota.....	319	15.35
Iowa.....	1,810	26.40	Minnesota.....	1,091	15.17
Alaska.....	32	26.27	Georgia.....	963	15.09
District of Columbia.....	299	25.91	Wisconsin.....	933	14.76
New York.....	6,618	25.67	Maine.....	248	12.51
Rhode Island.....	264	25.11	Ohio.....	1,724	12.07
Idaho.....	308	24.66	Kansas.....	460	11.97
Kentucky.....	1,562	24.44	Texas.....	1,393	11.75
Alabama.....	1,251	24.13	Michigan.....	1,020	10.31
Delaware.....	116	22.95	South Carolina.....	389	9.87
Massachusetts.....	2,063	22.57	Maryland.....	318	8.55
Vermont.....	189	22.46	State not specified.....	2,446	25.76
Utah.....	200	22.09			
Louisiana.....	1,106	21.38	Total.....	63,585	23.09
North Carolina.....	1,150	20.77			

50. *Valvular diseases of the heart and endocarditis.*—These conditions were for the most part determined by stethoscopic examinations. Altogether they were found in over 90,000 men. The ratio per State varied from about 80 per thousand to 17 per thousand. The State of greatest incidence is Washington; Utah comes next, and then follow Michigan and Maryland in somewhat scattered fashion. However, we find Oregon and California coming next; making, in addition to Washington, the whole Pacific coast a great center for valvular diseases of the heart. The second center is the States of the Northeast, including New York, Rhode Island, Massachusetts, Vermont, and Maine, also Connecticut, where about 4 per cent of the registrants were found to have valvular diseases of the heart. The smallest amount of this disease was found in the southern Central States, including Oklahoma and Texas. Many other Southern States had a relatively small incidence, as in the case of Arkansas, Mississippi, Alabama, South Carolina, and Florida. These are all below 28 per thousand.

TABLE 50.—Grand total for endocarditis, valvular diseases of the heart, etc., with ratio per 1,000 men; total rejections D+Vg.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Washington.....	2,552	61.55	Arizona.....	253	23.50
Utah.....	699	48.93	North Carolina.....	1,585	23.45
Michigan.....	4,895	43.64	District of Columbia.....	309	23.42
Maryland.....	1,836	39.73	Delaware.....	136	22.97
Rhode Island.....	595	39.62	Minnesota.....	1,895	22.56
Vermont.....	366	38.88	Iowa.....	1,812	22.49
New York.....	10,624	34.90	North Dakota.....	458	20.23
California.....	3,343	34.88	South Carolina.....	913	20.05
Oregon.....	664	34.76	Florida.....	590	19.56
Maine.....	777	34.01	New Hampshire.....	215	19.55
Alaska.....	59	33.02	Nevada.....	80	19.20
Massachusetts.....	3,498	32.26	Indiana.....	1,684	18.96
Georgia.....	2,195	30.09	Alabama.....	1,181	18.91
Connecticut.....	1,338	29.11	Mississippi.....	874	18.79
Idaho.....	428	28.03	Kentucky.....	1,321	16.47
Pennsylvania.....	6,376	27.48	Kansas.....	764	16.39
New Jersey.....	2,419	27.34	Nebraska.....	620	16.32
Missouri.....	2,874	27.18	New Mexico.....	217	16.07
Tennessee.....	1,954	27.15	Arkansas.....	840	15.47
Montana.....	886	26.26	West Virginia.....	690	15.03
Wisconsin.....	2,071	26.03	Texas.....	2,163	14.58
Virginia.....	1,621	25.71	Oklahoma.....	1,009	14.03
Louisiana.....	1,564	25.40	Wyoming.....	120	13.47
Illinois.....	5,336	25.17	State not specified.....	987	20.76
South Dakota.....	617	24.13			
Ohio.....	4,129	24.07			
Colorado.....	661	23.52	Total.....	85,143	26.26

51. *Cardiac hypertrophy and cardiac dilatation.*—This disease was found in nearly 13,000 men. The distribution is shown in Plate XXIX, figure 2. The distribution by States seems to be rather erratic and doubtless depends to a large extent upon the ideals of the examiners at camps. A good many cases were detected at Camp Lewis, to which Nevada, Washington, and Oregon were tributary. However, while Montana and Wyoming were equally contributory to Camp Lewis, yet there were only an average number of men from these States found with cardiac hypertrophy or dilatation. Here again the number of men found from New England with cardiac hypertrophy or dilatation was relatively high, and this was probably due in large measure to the careful examinations made at Camp Devens.

TABLE 51.—Grand total for cardiac hypertrophy, cardiac dilatation, with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Nevada.....	35	10.63	Wyoming.....	29	4.37
Maine.....	182	9.18	Tennessee.....	256	4.18
Washington.....	303	8.52	Missouri.....	344	4.02
Maryland.....	311	8.36	West Virginia.....	149	3.83
Virginia.....	389	6.99	New Jersey.....	287	3.78
New York.....	1,756	6.81	Colorado.....	84	3.73
Michigan.....	656	6.63	Indiana.....	262	3.66
Oregon.....	104	6.49	Illinois.....	649	3.62
Massachusetts.....	591	6.46	South Dakota.....	73	3.61
South Carolina.....	529	6.39	District of Columbia.....	39	3.38
Pennsylvania.....	1,181	5.84	Alabama.....	173	3.34
Connecticut.....	204	5.68	Mississippi.....	119	3.16
Wisconsin.....	353	5.58	Delaware.....	15	2.97
New Hampshire.....	46	5.39	New Mexico.....	30	2.93
North Dakota.....	94	5.26	Nebraska.....	85	2.88
Iowa.....	356	5.19	Louisiana.....	146	2.83
Georgia.....	326	5.11	Kansas.....	101	2.63
Vermont.....	43	5.11	Idaho.....	32	2.56
California.....	409	5.07	Texas.....	296	2.50
Alaska.....	6	4.93	Oklahoma.....	148	2.43
Utah.....	58	4.92	Kentucky.....	128	2.01
Rhode Island.....	70	4.83	Arizona.....	13	1.57
Florida.....	115	4.77	Arkansas.....	67	1.57
Minnesota.....	341	4.74	State not specified.....	107	1.13
Montana.....	128	4.67			
Ohio.....	627	4.39	Total.....	12,810	4.65
North Carolina.....	242	4.37			



52. *Myocarditis*.—This disease was noted in a relatively small number of men (7,092 altogether). Indeed, in men from Delaware no cases were recorded. Two centers of greatest frequency of myocarditis appear on the chart. One includes the Southern States of Georgia, Florida, Alabama, North Carolina, Tennessee, and Louisiana. Another includes the northern strip passing through Maine, Massachusetts, New York, Ohio, Indiana, Michigan, and Wisconsin. The Western States and those of intermediate latitude show relatively little myocarditis. Myocarditis in young men is usually due to infection which has caused destruction of some of the blood vessels of the heart muscles. In the southern group this is probably largely due to a syphilitic infection; possibly in the northern group to a greater extent to some other infectious cause.

TABLE 52.—Grand total for myocarditis, myocardial insufficiency, with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Maine.....	325	16.40	North Carolina.....	36	0.65
Vermont.....	37	4.39	Maryland.....	23	.62
Massachusetts.....	267	2.92	Tennessee.....	38	.62
Utah.....	27	2.29	South Dakota.....	12	.58
New Hampshire.....	14	1.64	Missouri.....	47	.55
Florida.....	36	1.49	Rhode Island.....	8	.55
Michigan.....	125	1.26	Washington.....	18	.51
Connecticut.....	45	1.25	Virginia.....	25	.45
California.....	98	1.22	Wyoming.....	3	.45
Colorado.....	25	1.11	South Carolina.....	17	.44
Georgia.....	57	1.05	Kansas.....	16	.42
Ohio.....	131	.92	Kentucky.....	26	.41
Louisiana.....	47	.91	Oklahoma.....	23	.38
Nevada.....	3	.91	Oregon.....	6	.37
North Dakota.....	16	.90	Idaho.....	4	.32
Iowa.....	61	.89	Nebraska.....	9	.31
New York.....	226	.87	New Mexico.....	3	.30
Wisconsin.....	53	.84	Texas.....	31	.26
Alaska.....	1	.82	Arizona.....	2	.24
Indiana.....	58	.81	West Virginia.....	9	.23
Pennsylvania.....	161	.79	Arkansas.....	9	.21
Minnesota.....	53	.74	District of Columbia.....	2	.17
Montana.....	20	.73	Delaware.....		
New Jersey.....	56	.73	State not specified.....	44	.46
Illinois.....	122	.68			
Mississippi.....	25	.67			
Alabama.....	34	.66			
			Total.....	2,544	.72

53. *Total diseases of the heart*.—This group comprises 106,529 cases, or 38.7 per 1,000 men examined. A distribution of these cases by States is given in Table 53 and Plate XXIX, figure 4. The order of the States is largely controlled by endocarditis and valvular diseases of the heart (Table 50), with 91,000 men, a few changes having occurred in the order of States in Table 53 as compared with Table 50, owing to the relatively greater importance of other cardiac disorders than endocarditis and valvular disease. Thus, Maine takes a relatively higher position, advancing nine places; Massachusetts and Connecticut two places; Arizona falls eight places; and Virginia moves up four places; New Hampshire rises six places; and Iowa five places. The remaining shifts are not very important. On the whole, the States of the northwestern part of the country tributary to Camp Lewis remain those with largest amount of heart defects of all kinds. (See p. 115.)

TABLE 53.—Grand total for organic diseases of the heart with ratio per 1,000 men—Total rejects.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Washington.....	2,855	68.84	Minnesota.....	2,275	27.10
Maine.....	1,273	55.70	Colorado.....	756	26.92
Utah.....	780	54.60	Montana.....	1,024	26.34
Michigan.....	5,642	50.30	District of Columbia.....	341	25.84
Maryland.....	2,153	46.58	South Carolina.....	1,174	25.80
Vermont.....	438	46.51	Delaware.....	147	24.82
Rhode Island.....	666	44.33	Arizona.....	267	24.79
New York.....	12,497	41.05	North Dakota.....	554	24.46
Massachusetts.....	4,339	39.99	Florida.....	737	24.42
California.....	3,827	39.94	Louisiana.....	1,748	23.86
Oregon.....	762	39.90	New Hampshire.....	260	23.63
Alaska.....	66	36.93	Indiana.....	1,988	22.39
Georgia.....	2,539	34.81	Alabama.....	1,379	22.07
Connecticut.....	1,572	34.20	Mississippi.....	1,010	21.75
Pennsylvania.....	7,616	32.83	Kansas.....	873	18.74
Virginia.....	1,988	31.51	Nebraska.....	704	18.52
Tennessee.....	2,239	31.10	New Mexico.....	250	18.51
Wisconsin.....	2,472	31.06	Kentucky.....	1,470	18.34
New Jersey.....	2,732	30.88	West Virginia.....	833	18.13
Missouri.....	3,247	30.71	Arkansas.....	909	16.76
Idaho.....	456	29.87	Texas.....	2,480	16.72
Illinois.....	6,125	28.62	Oklahoma.....	1,175	16.34
Ohio.....	4,858	28.32	Wyoming.....	145	16.29
Nevada.....	117	28.08	State not specified.....	1,109	23.36
North Carolina.....	1,851	27.41			
Iowa.....	2,205	27.37	Total.....	99,621	30.74
South Dakota.....	698	27.30			

54. *Arteriosclerosis and hypertension.*—These associated defects are relatively common in men beyond the age of registration. We are not surprised, however, to find that in many men of military age they are relatively uncommon, the highest ratio being 1.6 per mille in South Carolina, while four States gave no cases of arteriosclerosis or hypertension. Indeed, as these diseases are not especially looked for in most of the local boards, and even in the majority of mobilization camps, it is not surprising that they were found altogether in only 1,029 cases. The distribution of these small number of cases is, as would be expected, rather erratic and without obvious explanation.

TABLE 54.—Grand total for arteriosclerosis and hypertension, with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
South Carolina.....	63	1.60	Rhode Island.....	5	0.34
New Hampshire.....	10	1.17	Massachusetts.....	30	.33
South Dakota.....	21	1.01	Indiana.....	23	.32
California.....	78	.97	New York.....	74	.29
Alaska.....	1	.82	Connecticut.....	10	.28
Maryland.....	29	.78	Ohio.....	40	.28
Virginia.....	34	.61	Minnesota.....	19	.26
Georgia.....	38	.60	Missouri.....	22	.26
Florida.....	14	.58	Wisconsin.....	15	.24
Pennsylvania.....	105	.52	Colorado.....	4	.18
Nebraska.....	15	.51	District of Columbia.....	2	.17
Tennessee.....	30	.49	Idaho.....	2	.16
Vermont.....	4	.48	Kansas.....	6	.16
Maine.....	9	.45	New Jersey.....	12	.16
Mississippi.....	17	.45	Louisiana.....	8	.15
North Carolina.....	25	.45	Kentucky.....	8	.13
North Dakota.....	8	.45	Texas.....	15	.13
Michigan.....	42	.42	Utah.....	1	.08
Alabama.....	21	.41	Washington.....	3	.08
Arkansas.....	17	.40	Delaware.....		
Oregon.....	6	.37	Nevada.....		
Arizona.....	3	.36	New Mexico.....		
Montana.....	10	.36	Wyoming.....		
Oklahoma.....	22	.36	State not specified.....	8	.08
West Virginia.....	14	.36			
Illinois.....	62	.35	Total.....	1,029	.37
Iowa.....	24	.35			

55. *Cardiac arrhythmia*.—This defect is not a very common one, having been found in only 4,946 cases. The charts of its distribution, in Plate XXX, figure 2; show a slight excess in the Southern States. Thus, Arkansas and Virginia stand at the head of the list, and West Virginia, Tennessee, Missouri, Alabama, and North Carolina are in the upper half, although, on the other hand, the following Southern States have less than the average, namely, Texas, Florida, North Carolina, Louisiana, Georgia, and Mississippi. Apparently this defect is less common in States tributary to Camp Lewis, despite the large amount of cardiac defect found at that camp. Thus, Arizona, Wyoming, Nevada, Montana, California, and Utah stand in the lower half of the list. Only Oregon and Washington occupy a relatively high position. It seems fair to conclude, therefore, that the States west of the Rocky Mountains contain a relatively small amount of cardiac arrhythmia. This is relatively frequent in some of the Southern States and also some States of the Northeast—New Hampshire, Massachusetts, Rhode Island, Maine, and New York. Since functional cardiac disturbances are relatively less common among colored than white, the fact that some of the Southern States, with the largest proportion of colored population, such as Mississippi and Georgia, have a relatively small amount of cardiac arrhythmia, may be accounted for by the presence of the colored population.

TABLE 55.—Grand total for cardiac arrhythmias with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Arkansas.....	201	4.71	Nebraska.....	48	1.63
Virginia.....	250	4.49	Utah.....	17	1.43
New Hampshire.....	36	4.22	Mississippi.....	53	1.41
Massachusetts.....	323	3.53	Delaware.....	7	1.39
Iowa.....	216	3.15	Indiana.....	99	1.39
West Virginia.....	119	3.06	Georgia.....	84	1.31
South Dakota.....	57	2.74	California.....	101	1.25
Tennessee.....	151	2.47	Montana.....	34	1.24
Missouri.....	208	2.43	Louisiana.....	64	1.23
Oregon.....	39	2.43	Illinois.....	213	1.19
Rhode Island.....	35	2.42	North Dakota.....	21	1.18
Pennsylvania.....	484	2.40	North Carolina.....	61	1.10
Alabama.....	119	2.30	Wisconsin.....	66	1.04
Washington.....	77	2.17	Florida.....	24	1.00
Minnesota.....	150	2.09	Ohio.....	134	.94
Maine.....	39	1.96	Nevada.....	3	.91
New York.....	503	1.95	Wyoming.....	6	.90
Michigan.....	192	1.94	Alaska.....	1	.82
South Carolina.....	74	1.88	Kentucky.....	49	.77
Idaho.....	23	1.84	Arizona.....	6	.72
District of Columbia.....	21	1.82	Maryland.....	27	.72
Oklahoma.....	109	1.80	Kansas.....	27	.70
Vermont.....	15	1.78	Texas.....	64	.55
Connecticut.....	62	1.73	State not specified.....	48	.51
New Jersey.....	131	1.72			
Colorado.....	38	1.69			
New Mexico.....	17	1.67			
			Total.....	4,946	1.80

56. *Tachycardia*.—This functional disorder of the heart was observed in 12,251 men. It is consequently fairly common. Some points in its distribution agree with those of exophthalmic goiter, for example, the following States near the Great Lakes and in the extreme Northwest lie fairly high up on the list of States—Michigan, South Dakota, Washington, Wisconsin, California, Kansas, Oregon, and Utah. As it was found that there was relatively little exophthalmic goiter in the Southern States, so many of those States occupy the lower half of the list of occurrence of tachycardia; for example, Arkansas, Texas, North Carolina, Tennessee, West Virginia, and Georgia. It



must be admitted, however, that some of the Southern States stand relatively high; for example, Virginia (fourth on the list), South Carolina (twelfth on the list), Alabama (fourteenth on the list), Louisiana (fifteenth on the list), Mississippi (eighteenth on the list). It will be recalled that in none of the New England States was exophthalmic goiter common. However, Vermont and Maine have a relatively large amount of exophthalmic goiter, whereas New Hampshire, Massachusetts, Rhode Island, and Connecticut have relatively little of it. It is to be concluded, therefore, that the relation of tachycardia and exophthalmic goiter is fairly close, but that tachycardia is more diffusely spread throughout the population than exophthalmic goiter.

TABLE 56.—Grand total for tachycardia with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Michigan.....	922	9.32	Minnesota.....	289	4.09
Delaware.....	46	9.10	New Hampshire.....	34	3.92
South Dakota.....	174	8.37	Illinois.....	708	3.95
Virginia.....	432	7.76	Oklahoma.....	236	3.88
Washington.....	272	7.65	Nebraska.....	114	3.87
Wisconsin.....	421	6.66	West Virginia.....	145	3.73
Vermont.....	55	6.54	Tennessee.....	225	3.68
Maine.....	120	6.05	Nevada.....	12	3.65
California.....	486	6.03	North Carolina.....	201	3.63
Colorado.....	135	6.00	Massachusetts.....	324	3.55
Missouri.....	506	5.91	Idaho.....	44	3.52
South Carolina.....	216	5.48	Indiana.....	248	3.47
Kansas.....	208	5.41	New Jersey.....	221	2.91
Alabama.....	275	5.30	Rhode Island.....	39	2.69
Louisiana.....	271	5.24	New Mexico.....	27	2.64
District of Columbia.....	60	5.20	Texas.....	304	2.56
Oregon.....	82	5.12	Kentucky.....	153	2.39
Mississippi.....	188	4.99	Montana.....	63	2.30
Pennsylvania.....	1,006	4.97	Arkansas.....	95	2.23
Alaska.....	6	4.93	Connecticut.....	79	2.20
Iowa.....	335	4.89	Wyoming.....	14	2.11
Florida.....	117	4.85	North Dakota.....	34	1.90
Utah.....	57	4.84	Arizona.....	10	1.21
Ohio.....	663	4.64	State not specified.....	110	1.16
Maryland.....	161	4.33			
Georgia.....	270	4.23			
New York.....	1,038	4.03	Total.....	12,251	4.45

57, 58, 59. *Hemorrhoids, varicocele, and varicose veins* (see Tables 57, 58, 59).

TABLE 57.—Grand total for hemorrhoids, with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Delaware.....	14	2.77	Wyoming.....	7	1.05
Rhode Island.....	35	2.41	Kansas.....	40	1.04
Texas.....	270	2.28	West Virginia.....	39	1.00
Nevada.....	7	2.13	New Mexico.....	10	.98
Florida.....	51	2.11	Minnesota.....	70	.97
Tennessee.....	114	1.86	New Hampshire.....	8	.94
Vermont.....	15	1.78	Pennsylvania.....	191	.94
Mississippi.....	64	1.70	Colorado.....	21	.93
Virginia.....	93	1.67	Michigan.....	89	.90
Oklahoma.....	100	1.65	Idaho.....	11	.88
Louisiana.....	79	1.53	Montana.....	24	.88
Arkansas.....	65	1.52	New York.....	220	.85
North Carolina.....	84	1.52	Kentucky.....	53	.83
Georgia.....	96	1.50	Alaska.....	1	.82
Alabama.....	71	1.37	Ohio.....	105	.73
Illinois.....	246	1.37	South Dakota.....	15	.72
Connecticut.....	49	1.36	Wisconsin.....	44	.70
Maine.....	26	1.31	Maryland.....	25	.67
Massachusetts.....	120	1.31	North Dakota.....	12	.67
Missouri.....	109	1.27	Oregon.....	9	.66
Indiana.....	89	1.24	District of Columbia.....	6	.52
South Carolina.....	49	1.24	Washington.....	17	.48
New Jersey.....	83	1.09	Utah.....	2	.17
Arizona.....	9	1.08	State not specified.....	155	1.20
California.....	86	1.07			
Iowa.....	73	1.06	Total.....	3,302	1.20
Nebraska.....	31	1.05			

TABLE 58.—Grand total for varicocele, with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Arkansas.....	254	5.95	North Dakota.....	51	2.86
Delaware.....	30	5.93	Pennsylvania.....	579	2.86
Alaska.....	7	5.75	Tennessee.....	175	2.86
Wisconsin.....	306	4.84	Ohio.....	401	2.81
Iowa.....	324	4.73	New Jersey.....	210	2.77
Maine.....	91	4.69	Kansas.....	106	2.76
Vermont.....	37	4.40	Washington.....	98	2.76
Minnesota.....	303	4.21	South Carolina.....	108	2.74
Connecticut.....	151	4.20	Nevada.....	9	2.73
Colorado.....	92	4.09	Georgia.....	173	2.71
Illinois.....	710	3.96	New York.....	698	2.71
Virginia.....	219	3.94	Mississippi.....	101	2.68
Rhode Island.....	57	3.93	Montana.....	73	2.66
Massachusetts.....	355	3.88	South Dakota.....	53	2.55
Louisiana.....	196	3.79	Florida.....	60	2.49
Arizona.....	29	3.50	Nebraska.....	73	2.48
Missouri.....	291	3.40	California.....	194	2.41
Oklahoma.....	201	3.31	Wyoming.....	16	2.41
West Virginia.....	127	3.26	Texas.....	267	2.25
Michigan.....	322	3.25	Idaho.....	28	2.24
New Hampshire.....	27	3.17	New Mexico.....	22	2.15
Indiana.....	224	3.13	Maryland.....	78	2.10
Alabama.....	161	3.11	District of Columbia.....	20	1.73
Oregon.....	48	3.00	State not specified.....	418	4.40
Kentucky.....	190	2.97			
Utah.....	35	2.97			
North Carolina.....	159	2.87	Total.....	8,957	3.25

TABLE 59.—Grand total for varicose veins, with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Maine.....	173	8.73	Mississippi.....	149	3.95
Washington.....	257	7.23	New York.....	1,018	3.95
Alaska.....	8	6.57	Idaho.....	49	3.92
Vermont.....	55	6.54	Indiana.....	277	3.87
Wisconsin.....	398	6.30	South Dakota.....	80	3.85
Rhode Island.....	89	6.14	Tennessee.....	230	3.76
Massachusetts.....	544	5.95	Alabama.....	192	3.70
New Hampshire.....	50	5.87	Pennsylvania.....	749	3.70
Nevada.....	19	5.77	Kentucky.....	226	3.54
Utah.....	65	5.52	Florida.....	82	3.40
Montana.....	150	5.47	Oklahoma.....	204	3.36
Minnesota.....	393	5.46	Missouri.....	283	3.31
California.....	434	5.38	Texas.....	378	3.19
Oregon.....	86	5.37	Maryland.....	117	3.14
Colorado.....	117	5.20	District of Columbia.....	36	3.12
Virginia.....	286	5.14	New Jersey.....	234	3.08
Connecticut.....	179	4.98	Nebraska.....	85	2.88
West Virginia.....	189	4.86	Arkansas.....	115	2.69
North Dakota.....	85	4.76	Louisiana.....	138	2.67
Michigan.....	465	4.70	Kansas.....	86	2.24
Illinois.....	794	4.43	New Mexico.....	22	2.15
Georgia.....	280	4.39	Arizona.....	17	2.05
South Carolina.....	167	4.24	Delaware.....	10	1.98
Wyoming.....	28	4.22	State not specified.....	212	2.23
Ohio.....	598	4.19			
Iowa.....	277	4.04			
North Carolina.....	220	3.97	Total.....	11,395	4.14

60. *Hemorrhoids, varicocele, and varicose veins.*—These conditions, dependent upon the weakness of the walls of the veins, were found altogether in 23,654 men. The distribution of these defects by States is shown in Table 60 and in Plate XXXI, figure 4. From a consideration of the table and chart it appears that these defects were found prevailingly among the Northern States, such as Maine,

Vermont, Rhode Island, Wisconsin, and Massachusetts (between 15 and 11 per mille). Also, among the other Northern States that stand fairly high in proportion of defectives are Minnesota, Washington, California, New Hampshire, Iowa, Illinois, and Montana. Many of these are Northwestern States inhabited by tall persons of the Scandinavian race, a race which, on account of the hydrostatic qualities introduced by their tall stature, are particularly liable to varicose veins.

Many of the Southern States, such as Virginia and Arkansas, claim a relatively high rank in the list. This is largely due to the high percentage of hemorrhoids among men of the Southern States. Hemorrhoids are more than twice as apt to occur among colored as white men. The smallest number of defects in this group is found in the Central West, in States like Kansas, Nebraska, and South Dakota. The rate is also low in Maryland and New Jersey, possibly on account of the idiosyncrasies of camp examiners.

TABLE 60.—Grand total for hemorrhoids, varicocele, varicose veins, with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Maine.....	290	14.63	Oklahoma.....	505	8.32
Alaska.....	16	13.14	North Dakota.....	148	8.29
Vermont.....	107	12.72	Indiana.....	590	8.24
Rhode Island.....	181	12.48	South Carolina.....	324	8.22
Wisconsin.....	748	11.84	Alabama.....	424	8.18
Massachusetts.....	1,019	11.14	Florida.....	193	8.00
Virginia.....	598	10.75	Louisiana.....	413	7.99
Delaware.....	54	10.68	Missouri.....	683	7.98
Minnesota.....	766	10.64	Ohio.....	1,104	7.73
Nevada.....	35	10.63	Texas.....	915	7.72
Connecticut.....	379	10.54	Wyoming.....	51	7.68
Washington.....	372	10.47	New York.....	1,936	7.51
Colorado.....	230	10.22	Pennsylvania.....	1,519	7.50
Arkansas.....	434	10.16	Kentucky.....	469	7.34
New Hampshire.....	85	9.98	South Dakota.....	148	7.12
Iowa.....	674	9.83	Idaho.....	88	7.04
Illinois.....	1,750	9.76	New Jersey.....	527	6.94
West Virginia.....	355	9.12	Arizona.....	55	6.63
Montana.....	247	9.01	Nebraska.....	189	6.41
Oregon.....	143	8.93	Kansas.....	232	6.04
California.....	714	8.86	Maryland.....	220	5.91
Michigan.....	876	8.85	District of Columbia.....	62	5.37
Utah.....	102	8.66	New Mexico.....	54	5.28
Georgia.....	549	8.60	State not specified.....	785	8.27
Tennessee.....	519	8.48			
North Carolina.....	463	8.36			
Mississippi.....	314	8.33	Total.....	23,654	8.59

61. *Bronchitis*.—There were 2,015 cases of this disease noted on the returns for physical examination of recruits. Of all States, Maine stood in a class by itself, on account of the large number of cases of this disease which were recorded. This may, of course, be an idiosyncrasy of the examiners of this State. However, Rhode Island, Vermont, Connecticut, and Massachusetts stand relatively high on the list, so that there may be a greater tendency toward bronchitis in New England than in the remainder of the country. It is to be noted that Colorado, which has long been a resort of persons with tuberculosis, stands high on the list for bronchitis. But, on the other hand, California occupies only a middle position and Arizona and New Mexico come toward the bottom of the list. There seems, conse-



quently, to be no close relation between the incidence of bronchitis among the rejected men and of tuberculosis among such men. It is clear, moreover, that the term "bronchitis" applies only to the more chronic cases, and the cases detected on induction into service are only a small proportion of cases of bronchitis present.

TABLE 61.—Grand total for bronchitis with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Maine.....	63	3.18	Michigan.....	59	0.60
Rhode Island.....	19	1.31	New Hampshire.....	5	.59
Ohio.....	181	1.27	Alabama.....	29	.56
Colorado.....	28	1.24	South Dakota.....	11	.53
Georgia.....	77	1.21	Kentucky.....	32	.50
Vermont.....	10	1.19	Kansas.....	19	.49
Tennessee.....	66	1.08	Texas.....	56	.47
Delaware.....	5	.99	North Dakota.....	8	.45
Florida.....	24	.99	Mississippi.....	14	.37
Connecticut.....	35	.97	Arizona.....	3	.36
Maryland.....	36	.97	Nebraska.....	10	.34
Massachusetts.....	88	.96	Montana.....	9	.33
Pennsylvania.....	194	.96	Oklahoma.....	20	.33
South Carolina.....	34	.86	Wisconsin.....	20	.32
New York.....	218	.85	Nevada.....	1	.30
New Jersey.....	59	.78	District of Columbia.....	3	.26
Oregon.....	12	.75	Minnesota.....	19	.26
West Virginia.....	29	.75	Arkansas.....	10	.23
Wyoming.....	5	.75	Washington.....	8	.23
Indiana.....	52	.73	New Mexico.....	2	.20
Missouri.....	61	.71	Idaho.....	2	.16
Louisiana.....	36	.70	Utah.....	1	.08
Illinois.....	118	.66	Alaska.....		
Virginia.....	36	.65	State not specified.....	57	.60
California.....	52	.64			
Iowa.....	44	.64			
North Carolina.....	35	.63	Total.....	2,015	.73

62. *Asthma*.—This disease as found among recruits seems to have a closer relation with tuberculosis than had bronchitis. Colorado, California, and New Mexico, three of the four States with the greatest incidence of tuberculosis, lie well up on the list. Asthma is, however, due probably to special substances that float in the air. Consequently, many of the States, which stand highest on the list of asthmatics, do not occupy any such position in the list of tuberculosis. The asthma list is headed by Vermont which falls here almost in a class by itself, although the numbers are small. Then come Maine, Connecticut, Massachusetts, and Rhode Island in fairly close succession. It appears, therefore, that conditions in New England are particularly favorable to the development of asthma. On the other hand, there is relatively little of this disease in the Northwest, as for example, in Wyoming, Utah, Idaho, and Montana and the Central Southern States which occupy for the most part a median position on the list.

TABLE 62.—Grand total for asthma with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Vermont.....	82	9.74	Texas.....	285	2.40
Maine.....	133	6.71	Indiana.....	168	2.35
Colorado.....	136	6.05	Arkansas.....	98	2.30
Connecticut.....	149	4.15	New York.....	581	2.25
California.....	320	3.97	Ohio.....	312	2.18
Louisiana.....	192	3.71	Missouri.....	186	2.17
Massachusetts.....	326	3.57	Montana.....	57	2.08
Rhode Island.....	51	3.52	Pennsylvania.....	417	2.06
Florida.....	83	3.44	Tennessee.....	124	2.03
Oregon.....	55	3.44	Illinois.....	341	1.90
North Carolina.....	190	3.43	Minnesota.....	128	1.79
South Dakota.....	67	3.22	Oklahoma.....	109	1.79
South Carolina.....	122	3.10	Kentucky.....	113	1.77
New Hampshire.....	25	2.93	Idaho.....	22	1.76
Washington.....	102	2.87	Nebraska.....	51	1.73
New Mexico.....	29	2.83	Maryland.....	64	1.72
Virginia.....	155	2.79	Delaware.....	8	1.58
Nevada.....	9	2.73	Utah.....	18	1.53
Iowa.....	186	2.71	Wyoming.....	10	1.51
Alabama.....	138	2.66	New Jersey.....	106	1.40
Mississippi.....	100	2.65	Kansas.....	51	1.33
North Dakota.....	46	2.58	Alaska.....	1	.82
Michigan.....	248	2.51	District of Columbia.....	5	.43
Wisconsin.....	157	2.48	State not specified.....	133	1.40
Georgia.....	155	2.43			
West Virginia.....	94	2.42	Total.....	6,759	2.45
Arizona.....	20	2.41			

63. *Defective and deficient teeth, including dental caries.*—Of the defects falling into this group, there were 37,301 cases, or 13.5 per 1,000 men examined. The distribution of the defects found by States is shown in Table 63 and Plate XXXIX, figure 1. A consideration of the table and charts shows, first, that there is a very great difference in the number of defects found in the different States varying from 47.5 per 1,000 in Vermont to 3.2 per 1,000 in Kansas.

The most outstanding fact is that relatively many more defective teeth were found in New England than other sections of the country. Thus, the first five States on the list are Vermont, New Hampshire, Rhode Island, Massachusetts, and Maine. Connecticut is tenth on the list. These States were all examined at Camp Upton; but it appears also that defective teeth found by local boards were exceptionally numerous in this section of the country. In striking contrast is the number of defects found in the teeth of recruits from the Western States. Thus, Kansas, Arizona, New Mexico, Texas, Oklahoma, Nebraska, and Colorado lie near the bottom of the list. The States of the Pacific coast on the Northwest occupy a middle position. The States of the Southeast stand in a median to high position on the list. Thus, in Louisiana the rate is 18.2 per mille; Florida, 17.9; Georgia, 14.7; Virginia, 13.2; South Carolina, 12.6; Mississippi, 11.6. Other Southern States, like Alabama and Arkansas, stand well down in the list. New York State stands in the upper third and Pennsylvania and Illinois in the middle third. A consideration of all the facts indicates that the population of the New England States is, for some reason, characterized by a larger per cent of defective teeth than that of the Southeast. The slight defectiveness in the Southeast is largely influenced by the presence of the colored population which is characterized on the whole by resistance to dental caries. It has been stated, and the results seem to support the view, that there are racial differences in immunity to dental caries

and that the old stock which settled New England had especially nonresistant teeth.

TABLE 63.—Grand total for defective and deficient teeth, with dental caries, with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Vermont.....	400	47.53	Wisconsin.....	737	11.67
New Hampshire.....	372	43.66	Mississippi.....	438	11.63
Rhode Island.....	609	42.01	Illinois.....	1,954	10.90
Massachusetts.....	3,397	37.17	North Carolina.....	589	10.63
Maine.....	713	35.97	Iowa.....	699	10.19
New Jersey.....	2,185	28.78	Idaho.....	127	10.17
Alaska.....	27	22.17	Tennessee.....	621	10.14
Delaware.....	106	20.97	Wyoming.....	60	9.04
New York.....	5,233	20.30	Alabama.....	441	8.51
Connecticut.....	709	19.75	Indiana.....	593	8.29
Louisiana.....	939	18.15	West Virginia.....	321	8.25
Michigan.....	1,771	17.90	District of Columbia.....	94	8.15
Florida.....	418	17.33	Kentucky.....	494	7.73
Nevada.....	55	16.71	Ohio.....	1,013	7.09
Oregon.....	263	16.44	Colorado.....	152	6.76
Minnesota.....	1,146	15.93	Nebraska.....	183	6.21
Montana.....	424	15.83	Oklahoma.....	317	5.22
Washington.....	556	15.64	Texas.....	613	5.17
Georgia.....	941	14.74	Missouri.....	425	4.97
Utah.....	170	14.44	New Mexico.....	43	4.21
North Dakota.....	243	13.61	Arkansas.....	156	3.65
California.....	1,072	13.29	Arizona.....	28	3.38
Virginia.....	737	13.24	Kansas.....	121	3.15
Pennsylvania.....	2,662	13.16	State not specified.....	724	7.63
South Dakota.....	269	12.95			
South Carolina.....	496	12.59			
Maryland.....	435	11.69	Total.....	37,301	13.54

64. *Hernia*.—Hernia is one of the leading defects found in men of military age. There was a record made by local boards and mobilization camps of 57,372 cases. The distribution among the different States is shown in Table 64 and in Plate XXXIII, figure 1. Two principal centers of hernia seem to be shown in these tables. One is in the Northwest in the territory tributary to Camp Lewis, including Idaho, Nevada, Wyoming, Utah, Oregon, California, and Montana. A second center is in the South Atlantic States, which includes Florida, Mississippi, Virginia, Georgia, Alabama, Texas, and Oklahoma. However, it is to be stated that North Carolina, Arkansas, South Carolina, and Louisiana are in the lower half of the list. Among other States that fall in the upper third of the list are Vermont, Michigan, Minnesota, and Iowa, States that include a larger portion of the tall men of the Scandinavian and northern Germans, races which on account of their large statures are especially prone to develop hernia.

TABLE 64.—Grand total for hernia with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Florida.....	709	29.39	Minnesota.....	1,715	23.84
Idaho.....	360	28.83	Montana.....	653	23.81
Nevada.....	91	27.64	Iowa.....	1,628	23.75
Vermont.....	227	26.98	Georgia.....	1,514	23.72
Mississippi.....	996	26.43	New Jersey.....	1,785	23.51
Wyoming.....	175	26.38	Alabama.....	1,207	23.28
Utah.....	303	25.75	Texas.....	2,715	22.90
Delaware.....	128	25.32	Oklahoma.....	1,351	22.73
Oregon.....	402	25.12	Rhode Island.....	327	22.56
Michigan.....	2,452	24.78	Alaska.....	27	22.17
Virginia.....	1,370	24.62	Colorado.....	496	22.05
California.....	1,934	23.98	Wisconsin.....	1,392	22.03



TABLE 64.—Grand total for hernia with ratio per 1,000 men—Continued.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Indiana.....	1,568	21.92	New York.....	4,859	18.84
Washington.....	778	21.88	South Dakota.....	390	18.77
Louisiana.....	1,113	21.51	North Carolina.....	1,026	18.53
South Carolina.....	825	20.94	Massachusetts.....	1,636	17.90
Pennsylvania.....	4,220	20.87	New Mexico.....	181	17.69
West Virginia.....	812	20.87	New Hampshire.....	139	16.31
Illinois.....	3,741	20.86	Ohio.....	2,314	16.20
Arkansas.....	880	20.61	Connecticut.....	580	16.15
North Dakota.....	364	20.38	Arizona.....	131	15.79
Nebraska.....	599	20.32	District of Columbia.....	168	14.56
Kansas.....	740	19.26	Maryland.....	479	12.87
Maine.....	381	19.22	State not specified.....	1,458	15.36
Tennessee.....	1,174	19.18			
Kentucky.....	1,210	18.93	Total.....	57,372	20.83
Missouri.....	1,619	18.91			

65. *Enlargement of inguinal rings.*—Potential hernia may be expected to follow the same rule of distribution as hernia itself, and accordingly we find a higher incidence in the Northwestern States of Oregon, California, Wyoming, and Nevada. However, Virginia and West Virginia stand high in this list, which fact must be partly attributed to the generous interpretation of the requirements made by the examiners at Camp Lee, since these two States, with Pennsylvania, were tributary to that camp. We see accordingly that little hernia was reported from Pennsylvania and West Virginia and relatively less of hernia from Virginia than of enlarged inguinal rings. It seems probable, therefore, that many cases which at other camps would have been classified as hernia were classified at Camp Lee as enlargement of inguinal rings, thus increasing the latter category at the expense of the former. Except for Florida, most of the Southern States stand low in the list of enlargement of inguinal rings, such as Louisiana, Arkansas, South Carolina, North Carolina, Georgia, Alabama, and Texas. Combining the list of hernia and enlargement of inguinal rings, it appears that on the whole the great Northwest is the region of maximum occurrence and the Southeast is the region of least recurrence, with the scattering Middle States occupying an intermediate position.

TABLE 65.—Grand total for enlargement of inguinal rings with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Oregon.....	1,456	90.99	Illinois.....	2,944	16.42
California.....	3,679	45.61	District of Columbia.....	187	16.21
Virginia.....	2,370	42.59	Delaware.....	78	15.43
West Virginia.....	1,548	39.78	Ohio.....	2,115	14.80
Wyoming.....	246	37.08	Texas.....	1,718	14.49
New Jersey.....	2,434	32.06	Washington.....	506	14.23
Nevada.....	103	31.29	North Dakota.....	254	14.22
Pennsylvania.....	5,736	28.36	Mississippi.....	468	12.42
Florida.....	680	28.19	Minnesota.....	889	12.36
Arizona.....	231	27.85	Alabama.....	582	11.23
New Hampshire.....	232	27.23	Georgia.....	678	10.62
Colorado.....	602	26.76	Iowa.....	628	9.16
Massachusetts.....	2,418	26.46	Indiana.....	650	9.09
Wisconsin.....	1,658	26.23	Tennessee.....	550	8.99
Vermont.....	198	23.53	North Carolina.....	470	8.49
Connecticut.....	812	22.61	Missouri.....	721	8.42
New York.....	5,714	22.16	Nebraska.....	232	7.87
Alaska.....	26	21.35	Kansas.....	279	7.26
Utah.....	249	21.16	South Carolina.....	283	7.18
Maine.....	398	20.08	South Dakota.....	147	7.08
Rhode Island.....	286	19.73	Arkansas.....	218	5.11
Montana.....	527	19.22	Louisiana.....	234	4.52
Michigan.....	1,895	19.15	Kentucky.....	166	2.60
Idaho.....	228	18.26	State not specified.....	1,704	17.95
New Mexico.....	177	17.30			
Maryland.....	641	17.23	Total.....	52,292	18.99
Oklahoma.....	1,047	17.23			

66. *Hernia and enlargement of inguinal rings.*—This group comprises 109,664 cases, or 39.8 per 1,000 men examined. The distribution of cases by States is shown in Table 66, also in Plate XXXIII, figure 3. An examination of the table and charts and comparison with Tables 64 and 65, show that there is a considerable resemblance to Table 65. Here again we note the large amount of frank or potential hernia in the States of the Northwest: Oregon, California, Wyoming, Nevada, Montana, and Washington occupy a middle position. There is a second group of great frequency in the southern New England and Middle States, especially New Jersey, Pennsylvania, and Massachusetts. The Southeastern States have a low rate for frank and potential hernia that is the more noteworthy, since the colored population is slightly more given to hernia, in camp, than the whites.<sup>1</sup> The central band of States from the Alleghanies to the Rocky Mountains shows a small amount of hernia.

TABLE 66.—*Grand total for hernia and enlargement of inguinal rings, with ratio per 1,000 men.*

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Oregon.....	1,858	116.11	Texas.....	4,433	37.39
California.....	5,613	69.59	Illinois.....	6,685	37.28
Virginia.....	3,740	67.21	Minnesota.....	2,604	36.20
Wyoming.....	421	63.46	Washington.....	1,284	36.11
West Virginia.....	2,360	60.65	New Mexico.....	358	34.99
Nevada.....	194	58.93	North Dakota.....	618	34.60
Florida.....	1,389	57.58	Alabama.....	1,789	34.51
New Jersey.....	4,219	55.57	Georgia.....	2,192	34.34
Vermont.....	425	50.51	Iowa.....	2,256	32.91
Pennsylvania.....	9,956	49.23	Indiana.....	2,218	31.01
Colorado.....	1,098	48.81	Ohio.....	4,429	31.00
Wisconsin.....	3,050	48.26	District of Columbia.....	355	30.77
Idaho.....	588	47.09	Maryland.....	1,120	30.10
Utah.....	552	46.91	Nebraska.....	831	28.19
Massachusetts.....	4,054	44.36	Tennessee.....	1,724	28.17
Michigan.....	4,347	43.93	South Carolina.....	1,108	28.12
Arizona.....	362	43.64	Missouri.....	2,340	27.33
New Hampshire.....	371	43.54	North Carolina.....	1,496	27.02
Alaska.....	53	43.52	Kansas.....	1,019	26.52
Montana.....	1,180	43.03	Louisiana.....	1,347	26.03
Rhode Island.....	613	42.29	South Dakota.....	537	25.85
New York.....	10,573	41.00	Arkansas.....	1,098	25.72
Delaware.....	206	40.75	Kentucky.....	1,376	21.53
Oklahoma.....	2,428	39.96	State not specified.....	3,162	33.31
Maine.....	779	39.30			
Mississippi.....	1,464	38.85			
Connecticut.....	1,392	38.76	Total.....	109,664	39.82

67. *Nephritis.*—Of this defect, 2,205 records were made. An examination of Table 67 and Plate XXXII, figure 3, will show the distribution of these cases by States. The distribution of the disease does not show any obvious relation with races or environments.

<sup>1</sup> Report of Surgeon General, United States Army, 1918, Table XV.

TABLE 67.—Grand total for nephritis, with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Connecticut.....	74	2.06	Montana.....	19	0.69
Colorado.....	45	2.00	Washington.....	24	.68
Vermont.....	16	1.90	Tennessee.....	41	.67
Utah.....	18	1.53	Georgia.....	42	.66
California.....	102	1.26	Iowa.....	44	.64
New York.....	318	1.23	Maryland.....	24	.64
New Hampshire.....	10	1.17	Kentucky.....	40	.63
Maine.....	23	1.16	Michigan.....	61	.62
Massachusetts.....	101	1.11	Texas.....	71	.60
North Dakota.....	19	1.06	New Mexico.....	6	.59
Wyoming.....	7	1.05	Florida.....	14	.58
Minnesota.....	74	1.03	Louisiana.....	28	.54
Wisconsin.....	64	1.01	West Virginia.....	21	.54
Nebraska.....	29	.98	South Dakota.....	10	.48
Rhode Island.....	14	.97	Alabama.....	24	.46
Virginia.....	54	.97	Kansas.....	17	.44
District of Columbia.....	11	.95	South Carolina.....	17	.43
Oregon.....	15	.94	Mississippi.....	15	.40
Illinois.....	149	.83	Arkansas.....	15	.35
Indiana.....	58	.81	Nevada.....	1	.30
Ohio.....	110	.77	Oklahoma.....	17	.28
Missouri.....	65	.76	Delaware.....	1	.20
New Jersey.....	58	.76	Alaska.....	.....	.....
Arizona.....	6	.72	State not specified.....	21	.22
Idaho.....	9	.72			
North Carolina.....	40	.72			
Pennsylvania.....	143	.71	Total.....	2,205	.80

68. *Hydrocele*.—Of this defect, 3,153 cases were noted. The distribution of these cases among the different States is shown in Table 68 and Plate XXXII, figure 4. The differences in occurrence between the States at the top and those at the bottom of the list is not very great, and there is no obvious geographical or racial distribution of this defect.

TABLE 68.—Grand total for hydrocele, with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Nevada.....	7	2.13	Missouri.....	94	1.10
South Carolina.....	82	2.08	Alabama.....	56	1.08
Maine.....	33	1.92	Louisiana.....	56	1.08
Delaware.....	8	1.58	New Hampshire.....	9	1.06
New Mexico.....	16	1.56	Pennsylvania.....	199	.98
Oregon.....	25	1.56	Arkansas.....	41	.96
Florida.....	37	1.53	Kansas.....	37	.96
Rhode Island.....	22	1.52	Michigan.....	94	.95
Connecticut.....	53	1.48	New York.....	244	.95
Tennessee.....	90	1.47	North Dakota.....	17	.95
Georgia.....	92	1.44	Ohio.....	136	.95
Vermont.....	12	1.43	Oklahoma.....	58	.95
Minnesota.....	100	1.39	Iowa.....	64	.93
Virginia.....	76	1.37	Utah.....	11	.93
New Jersey.....	103	1.36	Montana.....	24	.88
Mississippi.....	50	1.33	California.....	70	.87
West Virginia.....	51	1.31	District of Columbia.....	10	.87
Texas.....	153	1.29	North Carolina.....	48	.87
Indiana.....	91	1.27	Kentucky.....	55	.86
South Dakota.....	26	1.25	Alaska.....	1	.82
Wisconsin.....	78	1.23	Nebraska.....	22	.75
Arizona.....	10	1.21	Idaho.....	8	.64
Wyoming.....	8	1.21	Maryland.....	21	.56
Colorado.....	27	1.20	State not specified.....	148	1.56
Massachusetts.....	109	1.19			
Illinois.....	206	1.15			
Washington.....	40	1.13	Total.....	3,133	1.14



69. *Fracture, malunion of, upper and lower extremity, shortening of lower extremity.*—These defects were noted in 21,338 men. The distribution of these cases among the different States is shown in Table 69 and Plate XXXVII, figure 1. From these figures it appears that certain States of the Northwest show an excess of fractures of the appendages and their consequences, namely, Utah, Washington, Wyoming, also Oregon, California, and Nevada. On the other hand, the more densely populated States of the East, like Maryland, Indiana, New York, New Jersey, and Wisconsin, have, for the most part, a relatively small ratio of cases, but to this rule Massachusetts is particularly an exception. We may conclude, then, that in the Western States, owing to the hazardousness of many of the occupations engaged in and the difficulty of securing proper surgical aid, there is an exceptionally large amount of defective appendages due to their having been broken and badly set, and the conditions are better in the eastern part of the country.

TABLE 69.—*Grand total for fracture, malunion of, upper and lower extremity and other; shortening of lower extremity with ratio per 1,000 men.*

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Utah.....	145	12.31	New Mexico.....	79	7.74
Washington.....	380	10.68	Vermont.....	65	7.72
Wyoming.....	69	10.39	Georgia.....	490	7.68
Virginia.....	571	10.27	Alabama.....	396	7.64
Mississippi.....	385	10.23	Michigan.....	753	7.61
Rhode Island.....	142	9.80	Illinois.....	1,358	7.59
Oregon.....	155	9.69	South Dakota.....	157	7.55
California.....	778	9.65	Nebraska.....	215	7.30
West Virginia.....	369	9.48	Iowa.....	499	7.28
Florida.....	221	9.15	Delaware.....	36	7.13
Nevada.....	30	9.11	Missouri.....	608	7.11
South Carolina.....	357	9.06	Wisconsin.....	448	7.09
North Carolina.....	493	8.90	North Dakota.....	123	6.89
Ohio.....	1,110	8.77	New Jersey.....	612	6.75
Tennessee.....	534	8.73	New York.....	1,752	6.75
Maine.....	170	8.58	Indiana.....	477	6.67
Massachusetts.....	774	8.47	Kentucky.....	420	6.58
New Hampshire.....	71	8.34	Maryland.....	238	6.39
Texas.....	972	8.19	Arkansas.....	268	6.28
Colorado.....	184	8.18	Arizona.....	51	6.15
Montana.....	224	8.18	District of Columbia.....	71	6.15
Idaho.....	102	8.16	Minnesota.....	514	6.09
Louisiana.....	417	8.06	Alaska.....	6	4.92
Pennsylvania.....	1,618	7.99	State not specified.....	470	4.95
Connecticut.....	284	7.92			
Oklahoma.....	478	7.86			
Kansas.....	299	7.77			
			Total.....	21,338	7.75

70. *Upper extremity, loss of whole or part of.*—The hands and arms are so necessary to so many kinds of work that the societies are interested in learning how many men of military age have been deprived of the upper extremity in whole or in part, without reference to the cause of loss. Out of approximately two and a half million men, 5,326, or nearly 2 per 1,000, were thus mutilated. The distribution of such mutilations is shown in Table 70 and Plate XXXVII, figure 2. No clear geographical or racial relations of the loss comes out from inspection of these charts. There is a partial exception to this statement, however, in that most of the Southern States stand in

the upper part of the list, such as Louisiana (2.8 per mille), North Carolina (2.6 per mille), Mississippi (2.6 per mille); Virginia (2.4 per mille), South Carolina (2.4 per mille), Texas (2.4 per mille), Georgia (2.4 per mille); Tennessee (2.4 per mille), Florida (2.2 per mille). The question may be raised whether insufficient protection is afforded to men in the South who may be engaged in a hazardous occupation imperiling the arms.

TABLE 70.—Grand total for upper extremity, loss of whole or part of, with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Vermont.....	42	4.99	Missouri.....	153	1.79
Washington.....	101	2.84	Rhode Is. and.....	26	1.79
Louisiana.....	145	2.80	Colorado.....	39	1.73
North Carolina.....	145	2.62	Michigan.....	168	1.70
Pennsylvania.....	529	2.62	Oregon.....	27	1.69
Mississippi.....	97	2.57	Alabama.....	85	1.64
West Virginia.....	95	2.44	Alaska.....	2	1.64
Virginia.....	135	2.43	Massachusetts.....	149	1.63
South Carolina.....	95	2.41	Iowa.....	108	1.58
Texas.....	286	2.41	Kansas.....	60	1.56
Georgia.....	152	2.33	Maryland.....	57	1.53
Tennessee.....	145	2.37	New Hampshire.....	13	1.53
New Mexico.....	24	2.35	Wyoming.....	10	1.51
Kentucky.....	145	2.27	New Jersey.....	110	1.45
Wisconsin.....	140	2.22	Utah.....	17	1.44
Indiana.....	157	2.20	Nebraska.....	41	1.39
Ohio.....	313	2.19	New York.....	350	1.36
Florida.....	52	2.16	South Dakota.....	25	1.20
Oklahoma.....	130	2.14	Montana.....	29	1.06
Minnesota.....	146	2.03	Idaho.....	13	1.04
Illinois.....	352	1.96	District of Columbia.....	11	.95
California.....	156	1.93	Arizona.....	6	.72
Connecticut.....	69	1.92	Delaware.....	3	.59
Maine.....	38	1.92	State not specified.....	16	.17
Arkansas.....	80	1.87			
North Dakota.....	33	1.85	Total.....	5,326	1.93
Nevada.....	6	1.82			

71. *Loss of whole or part of lower extremity.*—The Army is interested in knowing what proportion of men of military age are unable to walk owing to the loss of the whole or part of the legs. It appears that 8,796 men were placed in this category, or 3.2 per thousand. Defectives of this type are more apt to be from Southern States. Thus, in the upper half of the list are the States of Virginia, Louisiana, North Carolina, Tennessee, Texas, and Florida, whereas only South Carolina, Alabama, Mississippi, and Georgia lie in the lower half of the list. On the other hand, the mining States of West Virginia and Pennsylvania stand at the very head of the list. Here again, the question may be raised whether sufficient safeguards are employed in the Southern States to prevent the loss of appendages and whether there is special danger to appendages in the process of mining.

TABLE 71.—Grand total for lower extremity, loss of whole or part of, with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
West Virginia	217	5.58	Massachusetts	253	2.77
Pennsylvania	1,046	5.17	New York	710	2.75
Ohio	673	4.71	South Carolina	106	2.69
Vermont	35	4.16	Alabama	139	2.68
Washington	147	4.13	Mississippi	101	2.68
Utah	48	4.08	Wisconsin	166	2.63
Virginia	223	4.01	Maryland	94	2.53
Kentucky	250	3.91	Michigan	248	2.51
Oklahoma	226	3.72	Connecticut	89	2.48
Illinois	662	3.69	Georgia	154	2.41
Louisiana	184	3.56	Kansas	92	2.39
California	286	3.55	New Jersey	174	2.29
Indiana	252	3.52	South Dakota	46	2.21
Rhode Island	51	3.52	Arkansas	94	2.20
North Carolina	193	3.49	North Dakota	36	2.02
Tennessee	211	3.45	Nevada	6	1.82
Texas	384	3.24	Arizona	15	1.81
Missouri	275	3.21	Maine	34	1.72
Nebraska	91	3.09	Idaho	21	1.68
Colorado	69	3.07	Montana	46	1.68
Florida	73	3.03	District of Columbia	16	1.39
New Mexico	51	3.03	Wyoming	7	1.05
Iowa	204	2.98	Alaska	1	.82
Oregon	47	2.94	State not specified	26	.27
Minnesota	206	2.86			
New Hampshire	24	2.82			
Delaware	14	2.77	Total	8,796	3.19

72. *Arthritis*.—Inflammation of the joints does not show a very significant range of variability in the incidence (from 1 to 5 per mille). A study of the map, however, shows that the greatest incidence of arthritis is in the Gulf States of Florida, Mississippi, Alabama, and Louisiana and the smallest incidence is in the more Northern States of North Dakota, New Jersey, New York, Pennsylvania, Massachusetts, Connecticut, South Dakota, and Illinois. Just what this indicates is uncertain. It is opposed to the general view that "rheumatism" is due to severe climate, especially cold. It is known that a large proportion of the cases of arthritis are due to the infection of gonococcus. In view of the excessive amount of gonococcus infection in the Gulf States, it is probable that the similarity of the distribution of the two conditions is due to the same microorganism.

TABLE 72.—Grand total for arthritis, with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Alaska	7	5.75	Vermont	19	2.26
Florida	109	4.52	Arkansas	93	2.18
Mississippi	162	4.30	Michigan	213	2.15
Alabama	212	4.09	New Mexico	22	2.15
Louisiana	209	4.04	Wyoming	14	2.11
Oregon	64	4.00	Indiana	150	2.10
Maine	78	3.94	Nebraska	62	2.10
Virginia	213	3.83	Ohio	283	1.98
Georgia	239	3.74	Montana	54	1.97
Nevada	11	3.34	Maryland	73	1.96
North Carolina	185	3.34	New Hampshire	16	1.88
California	237	2.94	Illinois	335	1.87
South Carolina	114	2.89	South Dakota	38	1.83
Idaho	36	2.88	Connecticut	62	1.73
Washington	102	2.87	Massachusetts	155	1.70
Tennessee	173	2.83	Pennsylvania	344	1.70
Missouri	233	2.72	New York	400	1.55
Utah	32	2.72	Kentucky	89	1.39
Minnesota	186	2.59	New Jersey	102	1.34
Iowa	177	2.58	North Dakota	24	1.34
Rhode Island	37	2.55	District of Columbia	14	1.21
West Virginia	94	2.42	Colorado	24	1.07
Wisconsin	152	2.41	Arizona	8	.96
Texas	282	2.38	State not specified	178	1.87
Delaware	12	2.37			
Oklahoma	139	2.29			
Kansas	87	2.26	Total	6,354	2.31



73. *Ankylosis, bony and fibrous.*—Stiff joints were found in 18,592 cases, or 6.8 per thousand men examined. The distribution of such ankylosis by States is shown in table 73 and Plate XXXIV, figure 3. It appears that this defect is prevailingly common in the States of the Northwest, mostly tributary to Camp Lewis, such as Oregon, Utah, Washington, North Dakota, Idaho, and Wyoming. On the other hand, there are a few of the Southern States which have excessive amount of ankylosis, such as Mississippi, Virginia, Florida, West Virginia, Tennessee, and Alabama. The manufacturing States of New York and New Jersey lie at the very bottom of the list, and Massachusetts, Ohio, and Connecticut in its lower third. Gonococcus infection and exposure following infection are well-known causes of stiff joints.

TABLE 73.—Grand total for ankylosis, bony ankylosis or fibrous, with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Alaska.....	16	13.14	Nevada.....	23	6.99
Oregon.....	180	11.25	South Carolina.....	273	6.93
Maine.....	221	11.15	Iowa.....	473	6.90
Mississippi.....	405	10.75	Texas.....	805	6.79
Utah.....	124	10.54	Arkansas.....	289	6.77
New Hampshire.....	87	10.21	Pennsylvania.....	1,368	6.77
Virginia.....	521	9.36	District of Columbia.....	78	6.76
Florida.....	225	9.33	Missouri.....	574	6.70
West Virginia.....	353	9.08	Connecticut.....	235	6.54
Washington.....	311	8.75	Kansas.....	251	6.54
North Dakota.....	149	8.34	Illinois.....	1,170	6.53
Vermont.....	69	8.20	Colorado.....	143	6.36
Louisiana.....	422	8.16	Massachusetts.....	582	6.36
Idaho.....	100	8.00	New Mexico.....	65	6.35
Wyoming.....	53	7.98	Ohio.....	874	6.11
Oklahoma.....	473	7.78	Maryland.....	217	5.84
Tennessee.....	470	7.68	Indiana.....	417	5.83
Wisconsin.....	485	7.67	Nebraska.....	155	5.25
Michigan.....	755	7.63	South Dakota.....	108	5.20
North Carolina.....	423	7.63	Arizona.....	43	5.19
Alabama.....	390	7.53	Kentucky.....	38	5.13
Minnesota.....	541	7.52	New Jersey.....	359	4.73
California.....	603	7.48	New York.....	1,193	4.63
Montana.....	204	7.44	State not specified.....	384	4.04
Delaware.....	37	7.33			
Georgia.....	464	7.28			
Rhode Island.....	104	7.17			
			Total.....	18,592	6.75

74. *Grand total for arthritis and ankylosis.*—In this group of 24,946 cases, constituting 9.1 per 1,000 men examined, we have a distribution which is somewhat like that for ankylosis, Table 73. This similarity with that table does not warrant special discussion of the differences. It can be seen also by a comparison with Plate XXXIV, figure 4.

TABLE 74.—Grand total for arthritis, ankylosis, bony and fibrous, with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Alaska.....	23	18.89	North Dakota.....	173	9.68
Oregon.....	244	15.25	Iowa.....	650	9.48
Maine.....	299	15.09	Missouri.....	807	9.42
Mississippi.....	567	15.05	Montana.....	258	9.41
Florida.....	334	13.85	Texas.....	1,087	9.17
Utah.....	156	13.26	Arkansas.....	382	8.95
Virginia.....	734	13.19	Kansas.....	338	8.80
Louisiana.....	631	12.20	New Mexico.....	87	8.50
New Hampshire.....	103	12.09	Pennsylvania.....	1,712	8.47
Alabama.....	602	11.62	Illinois.....	1,505	8.40
Washington.....	413	11.62	Connecticut.....	297	8.27
West Virginia.....	447	11.50	Ohio.....	1,157	8.09
Georgia.....	703	11.02	Massachusetts.....	737	8.06
North Carolina.....	608	10.97	District of Columbia.....	92	7.97
Idaho.....	136	10.88	Indiana.....	567	7.93
Tennessee.....	643	10.51	Maryland.....	290	7.80
Vermont.....	88	10.46	Colorado.....	167	7.43
California.....	840	10.42	Nebraska.....	217	7.35
Nevada.....	34	10.33	South Dakota.....	146	7.03
Minnesota.....	727	10.11	Kentucky.....	417	6.52
Wyoming.....	67	10.09	New York.....	1,593	6.18
Wisconsin.....	637	10.08	Arizona.....	51	6.15
Oklahoma.....	612	10.07	New Jersey.....	461	6.07
South Carolina.....	387	9.82	State not specified.....	562	5.91
Michigan.....	968	9.78			
Rhode Island.....	141	9.72			
Delaware.....	49	9.69	Total.....	24,946	9.06

75. *Hammer toe and hallux valgus*.—These defects, for the most part caused by ill-fitting shoes, were found in 18,693 cases, or 6.8 per thousand men. The distribution of these cases by States is shown in Table 75 and Plate XXXV, figure 1. From a consideration of the table and charts it appears that on the whole these defects are commoner in the New England and other Northern States, such as Pennsylvania, Maine, Rhode Island, Massachusetts, Vermont, and Connecticut; also Idaho and New York. On the other hand, the smallest amount of hammer toe and hallux valgus were found in such States as Kentucky, Louisiana, Texas, Oklahoma, Georgia, Alabama, Mississippi, Arkansas, and Tennessee. South Carolina occupies a median position and Virginia stands at the very head of the list. The distribution of hammer toe and hallux valgus follows, as a matter of fact, closely parallel to that of pes planus, and the explanations that may be offered in connection with the latter defect apply also to the former.

TABLE 75.—Grand total for hammer toe and hallux valgus, with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Virginia.....	1,284	23.08	Utah.....	65	5.52
Alaska.....	27	22.17	Montana.....	149	5.44
Wyoming.....	145	21.85	Oregon.....	87	5.44
West Virginia.....	671	17.25	New Jersey.....	409	5.39
District of Columbia.....	169	14.65	Iowa.....	362	5.28
Colorado.....	293	13.03	Ohio.....	732	5.13
Pennsylvania.....	2,556	12.64	New Mexico.....	52	5.08
Maryland.....	442	11.88	Illinois.....	902	5.03
New Hampshire.....	91	10.68	Nebraska.....	136	4.61
Maine.....	211	10.64	South Dakota.....	93	4.48
Rhode Island.....	152	10.49	Arizona.....	37	4.46
Nevada.....	54	10.33	Indiana.....	310	4.34
Massachusetts.....	826	9.04	Tennessee.....	258	4.21
Vermont.....	71	8.44	Delaware.....	21	4.16
Connecticut.....	287	7.99	Arkansas.....	167	3.92
California.....	612	7.59	Mississippi.....	133	3.53
North Carolina.....	418	7.55	Kansas.....	135	3.52
Idaho.....	93	7.44	Alabama.....	182	3.51
New York.....	1,830	7.10	Georgia.....	210	3.29
Florida.....	170	7.04	Oklahoma.....	197	3.24
Missouri.....	569	6.64	Texas.....	371	3.13
North Dakota.....	114	6.38	Louisiana.....	135	2.61
Minnesota.....	457	6.35	Kentucky.....	122	1.91
Washington.....	219	6.16	State not specified.....	506	5.33
Michigan.....	600	6.06			
Wisconsin.....	359	5.68			
South Carolina.....	222	5.64	Total.....	18,693	6.79

76. *Pes planus*.—Flat foot is the commonest defect recorded in the drafted men. There were 301,146 cases recorded, constituting 109.4 per thousand of the men examined. The geographical distribution of these cases by States is given in Table 76, and Plate XXXV, figure 2. From the tables and charts, it appears that *pes planus* is particularly common in the States of the Northwest. Wyoming heads the list with a ratio of 231.08 per thousand, or nearly one-quarter of all the men examined. Colorado comes next (186 per 1,000). These are followed by Idaho, Montana, Oregon, Utah, Washington, California, North Dakota, and Wisconsin. On the other hand, the Southern States are characterized by the least amount of flat foot; at the bottom of the list stands Mississippi, with 47 defects found per thousand men; next South Carolina, Kentucky, Arkansas, Louisiana, Tennessee, Georgia, Texas, and New Mexico. The remainder of the States occupy an intermediate position.



TABLE 76.—Grand total for *pes planus*, with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Wyoming.....	1,533	231.08	Kansas.....	4,015	104.51
Colorado.....	4,183	185.95	Connecticut.....	3,743	104.22
Alaska.....	203	166.67	Penns. Ivania.....	20,465	101.19
Idaho.....	2,019	161.68	Alabama.....	3,720	71.76
Montana.....	4,420	161.18	Massachusetts.....	9,205	100.73
Oregon.....	2,545	159.05	Arizona.....	833	100.42
Utah.....	1,871	158.98	Iowa.....	6,682	97.47
Washington.....	5,615	157.93	Vermont.....	811	96.38
California.....	12,261	152.00	New Hampshire.....	781	91.67
North Dakota.....	2,572	143.98	North Carolina.....	5,023	90.71
Wisconsin.....	8,798	139.21	Oklahoma.....	5,427	89.31
Missouri.....	11,808	137.91	New Jersey.....	6,654	87.64
Illinois.....	24,608	137.24	South Dakota.....	1,769	85.15
District of Columbia.....	1,568	135.87	Maine.....	1,604	80.92
Nebraska.....	3,930	133.32	New Mexico.....	827	80.83
Nevada.....	433	131.53	Texas.....	9,320	78.60
Florida.....	3,037	125.90	Georgia.....	4,986	78.11
Minnesota.....	8,978	124.82	Tennessee.....	4,285	70.01
Rhode Island.....	1,697	117.06	Louisiana.....	3,507	67.78
New York.....	29,518	114.48	Arkansas.....	2,228	52.19
Maryland.....	4,223	113.48	Kentucky.....	3,234	50.60
Virginia.....	6,253	112.37	South Carolina.....	1,985	50.38
Michigan.....	11,023	111.41	Mississippi.....	1,791	47.53
Ohio.....	15,565	108.94	State not specified.....	17,420	183.49
Delaware.....	541	107.02			
West Virginia.....	4,108	105.57			
Indiana.....	7,521	105.15			
			Total.....	301,146	109.35

77. *Pronated foot*.—Of this condition of flat foot there were 17,373 cases recorded, being 6.3 per 1,000 men examined. The distribution of this defect by States is given in Table 77 and Plate XXXV, figure 3. The examination of the table and charts will show at once the great difference in the distribution of pronated foot and flat foot. Pronated foot is extremely commonly applied to the men who went to Camp Devens from New England. Thus, it is found in 25.88 per 1,000 men from Maine; from New Hampshire 23 per 1,000; from Massachusetts 15 per 1,000; Vermont 14 per 1,000; Rhode Island 9.6 per 1,000, and Connecticut 9.4 per 1,000.

The question arises whether many cases of defective feet which were classified at other camps or sections of the country as *pes planus* were not called pronated foot at Camp Devens and in New England. Also Pennsylvania, West Virginia, and Virginia stand high on the list of pronated foot, though these States occupied a median position in the case of flat foot. This group of three States is that tributary to Camp Lee, and it seems probable that their high position was due to some of the idiosyncrasies of the examiners at that camp. Certain it is, that the term "pronated foot" was much more used at Camp Devens and the States tributary to it and Camp Lee, and States tributary to it, than in any other States of the Union, excepting Florida, in which 20.4 per 1,000 were assigned to this category. For the rest, less than 10 per 1,000 of men examined were classified as having pronated feet and the ratios have become so small as to lead to the conclusion that the medical examiners hardly had the term in mind. Among the States in which the term was little used are the Southern States of Texas, Kentucky, Louisiana, and Arkansas (less than 2 per 1,000), also the Western States of

Utah, Arizona, Colorado, Idaho, Washington, Wyoming, Minnesota, Nevada, and Montana (less than 1.3 per 1,000). For the rest, the Southern States gave a rather low rate of pronated foot which is probably physiological and associated with the low rate of pes planus.

The low rate of pes planus, and pronated foot, in the Southern States is apparently associated with the less nearly universal use of shoes in the Southern States as compared with the Northern States.

TABLE 77.—Grand total for pronated foot with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Maine.....	513	25.88	Oklahoma.....	133	2.19
New Hampshire.....	194	22.77	New Mexico.....	22	2.15
Pennsylvania.....	4,354	21.53	Kansas.....	77	2.00
Florida.....	494	20.48	Arkansas.....	69	1.62
West Virginia.....	794	20.41	California.....	131	1.62
Virginia.....	1,047	18.82	Nebraska.....	46	1.56
Massachusetts.....	1,392	15.23	Oregon.....	25	1.56
Vermont.....	120	14.26	Wisconsin.....	94	1.49
District of Columbia.....	113	9.79	North Dakota.....	26	1.46
North Carolina.....	541	9.77	Missouri.....	124	1.45
Maryland.....	361	9.70	South Dakota.....	29	1.40
Rhode Island.....	139	9.59	Montana.....	35	1.28
Connecticut.....	336	9.36	Nevada.....	4	1.22
Delaware.....	47	9.30	Louisiana.....	59	1.14
South Carolina.....	333	8.45	Minnesota.....	82	1.14
New York.....	1,611	6.25	Wyoming.....	7	1.05
New Jersey.....	469	6.18	Washington.....	37	1.04
Alabama.....	306	5.90	Idaho.....	12	.96
Tennessee.....	343	5.60	Colorado.....	19	.84
Ohio.....	756	5.29	Arizona.....	7	.84
Alaska.....	5	4.11	Utah.....	9	.76
Illinois.....	609	3.40	Kentucky.....	48	.75
Michigan.....	331	3.35	Texas.....	57	.48
Georgia.....	206	3.23	State not specified.....	312	3.29
Indiana.....	226	3.16			
Mississippi.....	98	2.60			
Iowa.....	171	2.49			
			Total.....	17,373	6.31

78. *Total for pes planus and pronated foot.*—In this group are placed 318,519 cases, or 115.7 per 1,000 men examined. Since all but 17,000 of these have flat foot, this condition controls. In fact there are in Table 77 few deviations from the order of States given in Table 76. However, in Table 78, as compared with Table 76, North Dakota falls two points in the table and Wisconsin gains two and District of Columbia rises four points. Florida rises seven points, showing that, as we have seen pronated foot is relatively more important in the South than in the North Atlantic States. New York drops four points and Ohio five points, Massachusetts six and New Hampshire eight. Maine rises eight points. The rest of the changes are slight ones.

TABLE 78.—Grand total for pes planus and pronated foot, with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Wyoming.....	1,540	232.13	New Hampshire.....	975	114.44
Colorado.....	4,202	186.79	Ohio.....	16,321	114.23
Alaska.....	208	170.78	Connecticut.....	4,079	113.58
Idaho.....	2,031	162.64	Vermont.....	931	110.64
Montana.....	4,455	162.46	Indiana.....	7,747	108.31
Oregon.....	2,570	160.61	Maine.....	2,117	106.80
Utah.....	1,880	159.74	Kansas.....	4,092	106.51
Washington.....	5,652	158.97	Arizona.....	840	101.26
California.....	12,392	153.62	North Carolina.....	5,564	100.48
Florida.....	3,531	146.38	Iowa.....	6,853	99.96
District of Columbia.....	1,681	145.66	New Jersey.....	7,123	93.82
North Dakota.....	2,598	145.44	Oklahoma.....	5,560	91.50
Wisconsin.....	8,892	140.70	South Dakota.....	1,798	86.55
Illinois.....	25,217	140.64	New Mexico.....	849	82.98
Missouri.....	11,932	139.36	Georgia.....	5,192	81.34
Nebraska.....	3,976	134.88	Texas.....	9,377	79.08
Nevada.....	437	132.75	Alabama.....	4,026	77.66
Virginia.....	7,300	131.19	Tennessee.....	4,628	75.61
Rhode Island.....	1,836	126.65	Louisiana.....	3,566	68.92
West Virginia.....	4,902	125.98	South Carolina.....	2,318	58.83
Minnesota.....	9,060	125.96	Arkansas.....	2,297	53.81
Maryland.....	4,584	123.18	Kentucky.....	3,282	51.35
Pennsylvania.....	24,819	122.17	Mississippi.....	1,889	50.13
New York.....	31,129	120.73	State not specified.....	17,732	186.78
Delaware.....	588	116.32			
Massachusetts.....	10,597	115.96	Total.....	318,519	115.66
Michigan.....	11,354	114.76			

79. *Foot deformity, not specified; pes cavus.*—The distribution of this group was not particularly analyzed.

TABLE 79.—Grand total for foot deformity not specified; pes cavus, with ratio per 1000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
West Virginia.....	398	10.23	New Hampshire.....	33	3.88
Virginia.....	442	7.85	Alabama.....	200	3.86
Maine.....	149	7.52	Delaware.....	19	3.76
North Dakota.....	113	6.33	Wyoming.....	25	3.76
Michigan.....	609	6.15	Ohio.....	536	3.75
Rhode Island.....	87	6.01	Indiana.....	263	3.68
Missouri.....	475	5.54	Louisiana.....	183	3.63
Arkansas.....	232	5.43	Kentucky.....	224	3.50
Tennessee.....	329	5.38	Georgia.....	222	3.48
Alaska.....	6	4.93	Florida.....	83	3.44
Idaho.....	61	4.88	Colorado.....	76	3.38
Vermont.....	40	4.75	Illinois.....	595	3.31
Oklahoma.....	286	4.70	Connecticut.....	113	3.14
Pennsylvania.....	940	4.65	New York.....	804	3.12
Oregon.....	73	4.56	Wisconsin.....	193	3.05
Mississippi.....	164	4.36	Kansas.....	114	2.96
Montana.....	119	4.34	Texas.....	348	2.93
California.....	348	4.32	New Jersey.....	220	2.90
North Carolina.....	238	4.30	Maryland.....	101	2.71
Nevada.....	14	4.26	Nebraska.....	77	2.62
Massachusetts.....	388	4.24	Minnesota.....	175	2.43
South Dakota.....	88	4.23	District of Columbia.....	22	1.90
Washington.....	150	4.22	Arizona.....	15	1.81
South Carolina.....	160	4.06	State not specified.....	129	1.36
Utah.....	47	3.99			
Iowa.....	316	3.97	Total.....	11,087	4.03
New Mexico.....	40	3.91			

80. *Metatarsalgia.*—This term was applied, somewhat locally, to cases where severe pain in the anterior arch of the foot was found.



Altogether 6,178 cases were placed in this category, or 2.2 per 1,000 of the men examined. The distribution of this disease by States is given in Table 80 and Plate XXXVI, figure 2. It appears first of all that the three States tributary to Camp Lee had an exceptionally large number of cases of metatarsalgia. This result is undoubtedly due to the use of this term by the examiners at Camp Lee and their instruction in the use of it on the part of the examiners in local boards tributary to that camp. The States next highest on the list are Michigan, Rhode Island, Delaware, and District of Columbia. The three latter States are densely populated and show in less exaggerated form the tendency which is found in all the large cities toward weak feet. There soon followed the States tributary to Camps Devens, Upton, and Dix. It is probable that in these camps, also, the term "metatarsalgia" was in common use. On the other hand, throughout the Southern States the term seems to have been but little used, and, accordingly, few cases are recorded as metatarsalgia. Thus, in Kentucky, 0.1 per thousand; in Georgia, 0.3 per thousand; in Texas, 0.4 per thousand; Louisiana, 0.4 per thousand. In addition, it would appear that the same causes which lead to a low rate of flat foot in the Southern States are responsible in part for the small amount of metatarsalgia recorded from those States.

TABLE 80.—Grand total for metatarsalgia, with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
West Virginia.....	357	9.17	South Carolina.....	59	1.50
Virginia.....	403	7.24	Ohio.....	201	1.41
Pennsylvania.....	1,406	6.95	Illinois.....	241	1.34
Michigan.....	543	5.49	North Carolina.....	69	1.25
Rhode Island.....	78	5.38	Iowa.....	69	1.01
Delaware.....	27	5.34	South Dakota.....	17	.82
District of Columbia.....	60	5.20	Colorado.....	16	.71
North Dakota.....	68	3.81	Arkansas.....	29	.68
Maryland.....	139	3.74	Alabama.....	34	.66
Idaho.....	40	3.20	Missouri.....	53	.62
Massachusetts.....	284	3.11	Oklahoma.....	36	.59
Maine.....	56	2.83	Wisconsin.....	35	.55
New Jersey.....	213	2.81	Tennessee.....	31	.51
New York.....	674	2.61	Nebraska.....	14	.47
Connecticut.....	92	2.56	Minnesota.....	33	.46
Vermont.....	21	2.50	Kansas.....	17	.44
Washington.....	88	2.48	Mississippi.....	16	.42
Alaska.....	3	2.46	Louisiana.....	20	.39
New Hampshire.....	21	2.46	New Mexico.....	4	.39
Utah.....	29	2.46	Texas.....	42	.35
Oregon.....	38	2.37	Georgia.....	21	.33
Florida.....	57	2.36	Arizona.....	2	.24
Indiana.....	135	1.89	Kentucky.....	7	.11
California.....	148	1.83	State not specified.....	66	.70
Nevada.....	6	1.82			
Montana.....	49	1.79			
Wyoming.....	11	1.66	Total.....	6,178	2.24

81. *Grand total for all defects or deformities of feet, including metatarsalgia.*—This group includes 354,477 cases, or 128.7 per 1,000 men examined; that is, it contains over one-eighth of all the men examined. The distribution of the cases by States is given in Table 81 and Plate XXXVI, figure 3. An examination of the table and charts shows that the northwestern States lie at the top of the list. Thus, Wyoming, Colorado, Idaho, Montana, Oregon, Washington,

and Utah are at the very head. Contrarywise, the States of the Southeast show the smallest amount of foot defects, such as Kentucky, Mississippi, Arkansas, South Carolina, Louisiana, Texas, Alabama, Tennessee, Georgia, the New England, Middle States, and Central States occupying an intermediate position.

TABLE 81.—*Grand total for hammer toe, hallux valgus, pes planus, pronated foot, metatarsalgia, foot deformity not specified, pes cavus, with ratio per 1,000 men.*

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Wyoming.....	1,721	259.40	Delaware.....	655	129.58
Colorado.....	4,587	203.91	Maine.....	2,533	127.79
Alaska.....	244	200.34	Connecticut.....	4,571	127.27
Idaho.....	2,225	178.16	Vermont.....	1,063	126.33
Montana.....	4,772	174.03	Ohio.....	17,790	124.52
Oregon.....	2,768	172.98	Indiana.....	8,455	118.22
Washington.....	6,109	171.83	North Carolina.....	6,289	113.58
Utah.....	2,021	171.71	Kansas.....	4,358	113.43
Virginia.....	9,429	169.46	Iowa.....	7,600	110.22
District of Columbia.....	1,932	167.41	Arizona.....	894	107.77
California.....	13,500	167.36	New Jersey.....	7,965	104.92
West Virginia.....	6,328	162.63	Oklahoma.....	6,079	100.03
North Dakota.....	2,893	161.96	South Dakota.....	1,996	96.08
Florida.....	3,841	159.22	New Mexico.....	945	92.36
Missouri.....	13,029	152.16	Georgia.....	5,645	88.44
Illinois.....	26,955	150.32	Tennessee.....	5,246	85.71
Wisconsin.....	9,479	149.98	Alabama.....	4,442	85.69
Nevada.....	491	149.16	Texas.....	10,138	85.49
Rhode Island.....	2,153	148.53	Louisiana.....	3,909	75.55
Pennsylvania.....	29,721	146.96	South Carolina.....	2,759	70.03
Nebraska.....	4,203	142.58	Arkansas.....	2,725	63.84
Maryland.....	5,266	141.51	Mississippi.....	2,202	58.44
Minnesota.....	9,725	135.20	Kentucky.....	3,635	56.87
New York.....	34,437	133.56	State not specified.....	18,433	194.17
Michigan.....	13,106	132.46			
Massachusetts.....	12,095	132.35			
New Hampshire.....	1,120	131.46			
			Total.....	354,477	128.72

82. *Deformities of the hand due to injury or infection; loss of one or more fingers.*—Society is interested to know what proportion of men of military age have deformed hands, however produced, and missing fingers, especially those that are most useful for special occupations. There were counted altogether 20,656 such cases, or 7.5 per 1,000 men examined. The distribution of these cases by States is given in Table 82 and Plate XXXVI, figure 4. A study of the table and charts brings out that the largest proportion of such defects came from the Western States, including Nevada, Washington, Wyoming, Montana, Oregon, and Idaho. The more densely populated States of the East have relatively fewest of these defects. Thus, the District of Columbia showed only 3.6 per thousand; New Jersey, 5.9 per thousand; New York, 6 per thousand. The Southern States occupy a median position in the series. It would appear probable, therefore, that the more rigorous life of the frontier has resulted in the greater amount of injury to the hand and fingers.

TABLE 82.—Grand total for hand, deformities of, injury or infection, fingers, loss of one or more, with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Nevada.....	43	13.06	Tennessee.....	451	7.37
Washington.....	426	11.98	Missouri.....	628	7.33
New Hampshire.....	100	11.74	Connecticut.....	262	7.30
Wyoming.....	73	11.00	Pennsylvania.....	1,475	7.29
Maine.....	214	10.79	Arkansas.....	319	7.26
Rhode Island.....	156	10.76	South Dakota.....	151	7.26
Alaska.....	13	10.68	Kansas.....	278	7.24
Montana.....	266	9.70	Kentucky.....	463	7.24
Oregon.....	155	9.69	Alabama.....	373	7.19
Vermont.....	79	9.39	Illinois.....	1,276	7.11
Virginia.....	522	9.38	South Carolina.....	268	6.80
Idaho.....	117	9.37	North Carolina.....	375	6.77
Wisconsin.....	591	9.36	Nebraska.....	195	6.61
Iowa.....	631	9.20	Arizona.....	54	6.51
Michigan.....	898	9.07	Colorado.....	142	6.31
Delaware.....	44	8.71	North Dakota.....	110	6.16
Ohio.....	1,233	8.63	New Mexico.....	63	6.15
Minnesota.....	613	8.52	Texas.....	727	6.13
West Virginia.....	331	8.51	Maryland.....	226	6.07
Massachusetts.....	736	8.05	Utah.....	71	6.03
Mississippi.....	303	8.04	New York.....	1,541	5.98
California.....	644	7.99	New Jersey.....	448	5.90
Louisiana.....	398	7.69	District of Columbia.....	41	3.55
Florida.....	185	7.67	State not specified.....	493	5.19
Georgia.....	480	7.52			
Indiana.....	534	7.46			
Oklahoma.....	450	7.41	Total.....	20,656	7.50

83. *Deformity, location not given; deformity of upper and lower extremity; deformity of trunk; deformity of head; deformity of chest.*—This group of miscellaneous deformities contains a record of 25,721 men, or 9.3 per thousand of all the men examined. The distribution by States is given in Table 83 and Plate XXXVII, figure 4. From inspection of the table and figures no clear relation between the geographical conditions or racial constitution of the population on the one hand, and location of the States in the list on the other, appears. Rhode Island, Vermont, and Maine, indeed, stand at the top of the list, and Nevada and Arizona near the bottom, and these represent, perhaps, States as unlike as possible in respect to the density and other characteristics of the population. However, the more densely populated States of Massachusetts, New Jersey, New York, Michigan, and Maryland lie near the bottom of the list, and certain more sparsely settled States like Utah, Washington, and Colorado lie nearer the top. The Southern States occupy an intermediate position.



TABLE 83.—Grand total for deformity location not given; upper extremity deformity; lower extremity deformity; trunk, deformity of; head, deformity of; chest, deformity of; with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Rhode Island.....	233	16.08	Wyoming.....	62	9.34
Vermont.....	133	15.81	New Hampshire.....	78	9.15
Maine.....	307	15.50	Alaska.....	11	9.03
California.....	1,022	12.68	Pennsylvania.....	1,822	9.01
Tennessee.....	775	12.67	Ohio.....	1,288	9.00
Utah.....	146	12.40	Kansas.....	345	8.97
North Carolina.....	677	12.21	Alabama.....	453	8.74
Missouri.....	1,043	12.17	North Dakota.....	156	8.73
Washington.....	425	11.96	Connecticut.....	310	8.65
Colorado.....	264	11.73	Florida.....	205	8.49
Kentucky.....	739	11.56	New Mexico.....	86	8.40
Oklahoma.....	673	11.07	Illinois.....	1,479	8.25
Virginia.....	616	11.06	Nebraska.....	240	8.15
South Dakota.....	228	10.99	Montana.....	221	8.06
Oregon.....	175	10.92	Massachusetts.....	722	7.92
Mississippi.....	404	10.73	New Jersey.....	586	7.71
South Carolina.....	414	10.50	New York.....	1,987	7.70
Iowa.....	715	10.43	Michigan.....	759	7.66
Wisconsin.....	654	10.36	Maryland.....	281	7.55
Minnesota.....	731	10.17	District of Columbia.....	87	7.53
Texas.....	1,205	10.16	Arizona.....	55	6.62
West Virginia.....	393	10.10	Delaware.....	33	6.53
Georgia.....	642	10.07	Nevada.....	21	6.37
Louisiana.....	516	9.97	State not specified.....	81	.85
Indiana.....	700	9.79			
Arkansas.....	406	9.51			
Idaho.....	117	9.36	Total.....	25,721	9.34

84. *Atrophy of muscle of upper extremity and lower extremity.*—Muscle atrophy was recorded in 7,135 cases, being 2.6 per 1,000 men examined. The frequency with which the term was employed depends possibly to a certain extent upon the knowledge and ideals of the examiners at camp and also probably to a considerable extent upon the peculiarities of the population. Thus, the five States of Rhode Island, Vermont, New Hampshire, Massachusetts, and Maine head the list with between 6.1 and 3.9 per 1,000 defectives. Connecticut, on the other hand, lies at the bottom of the list, with 1.4 per 1,000. Pennsylvania and Virginia, tributary to Camp Lee, each showed 3.2 per 1,000 of muscular atrophy, while West Virginia, tributary to the same camp, showed only 2.3 per 1,000. States tributary to Camp Lewis—like Washington, California, and Oregon—showed a high proportion of muscular atrophy, though other States tributary to the same camp, like Utah, New Mexico, Idaho, Montana, and Wyoming, showed a relatively low ratio. The Southern States tend to fall in the middle or lower part of the list. Muscular atrophy is due to a variety of causes, partly to a paralysis of the spinal nerves in early life, partly to certain hereditary degenerate diseases. It seems probable that the relatively high incidence in the New England States and the other more densely populated States of the Northeast is due to the greater frequency in those States of infantile juvenile paralysis of the spinal nerves.

TABLE 84.—Grand total for atrophy of muscle of upper extremity and lower extremity, with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Rhode Island.....	89	6.14	West Virginia.....	90	2.31
Vermont.....	50	5.94	Utah.....	27	2.29
New Hampshire.....	42	4.93	New Mexico.....	23	2.25
Massachusetts.....	361	3.95	Texas.....	267	2.25
Maine.....	78	3.93	Kentucky.....	142	2.22
Washington.....	135	3.80	Illinois.....	397	2.21
California.....	275	3.41	New Jersey.....	163	2.15
Ohio.....	487	3.41	Florida.....	51	2.12
Oregon.....	54	3.37	Idaho.....	26	2.08
Wisconsin.....	207	3.28	Montana.....	56	2.05
Pennsylvania.....	653	3.23	South Carolina.....	79	2.01
Virginia.....	179	3.22	Louisiana.....	103	1.99
New York.....	815	3.16	Maryland.....	68	1.82
Iowa.....	204	2.98	Delaware.....	8	1.58
Kansas.....	114	2.96	Mississippi.....	57	1.51
Missouri.....	248	2.89	Connecticut.....	52	1.44
South Dakota.....	58	2.79	Colorado.....	31	1.38
North Dakota.....	49	2.74	Alabama.....	63	1.22
Michigan.....	266	2.69	Wyoming.....	8	1.20
Indiana.....	192	2.68	Georgia.....	72	1.13
Oklahoma.....	157	2.68	Alaska.....	1	.92
Tennessee.....	156	2.55	Arkansas.....	32	.75
Minnesota.....	182	2.53	Arizona.....	5	.60
North Carolina.....	140	2.53	State not specified.....	19	.20
Nevada.....	8	2.44			
District of Columbia.....	28	2.43			
Nebraska.....	68	2.31			
			Total.....	7,135	2.59

85. *Defective physical development.*—Defective physical development was recorded in 7,315 cases, being 2.7 per 1,000 men examined. Table 85 and Plate XXXVIII, figure 1, show the geographical distribution of the cases by States. An examination of the table and charts shows a great irregularity in the distribution of the cases. Therefore, it is difficult to account for it on the ground of either racial constitutional factors or on pathological grounds. This is perhaps to be expected in view of the inclusiveness of the term. One sees that the more densely populated States like Rhode Island, District of Columbia, and Massachusetts tend to lie toward the top of the list. On the other hand, Illinois, New Jersey, and Ohio actually lie near the bottom. The sparsely settled Southern States are distributed almost at random on the whole list with Georgia next to the top, and Oklahoma and West Virginia at the very bottom.

TABLE 85.—Grand total for defective physical development with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Vermont.....	59	7.01	Minnesota.....	186	2.59
Georgia.....	422	6.61	Missouri.....	219	2.56
Alaska.....	8	6.57	Oregon.....	40	2.50
Rhode Island.....	74	5.10	Idaho.....	31	2.48
Utah.....	58	4.93	Mississippi.....	91	2.42
Arkansas.....	203	4.76	North Dakota.....	43	2.41
District of Columbia.....	54	4.68	New York.....	587	2.28
Tennessee.....	273	4.46	South Dakota.....	47	2.26
Massachusetts.....	404	4.42	Maryland.....	83	2.23
North Carolina.....	234	4.23	Indiana.....	157	2.20
New Hampshire.....	35	4.11	Washington.....	77	2.17
Florida.....	95	3.94	Michigan.....	203	2.05
Wyoming.....	26	3.92	Montana.....	56	2.04
Alabama.....	200	3.86	Louisiana.....	104	2.01
South Carolina.....	152	3.86	Texas.....	238	2.01
Connecticut.....	135	3.76	Pennsylvania.....	374	1.85
Wisconsin.....	232	3.67	Kansas.....	70	1.82
Colorado.....	82	3.65	Nebraska.....	52	1.76
Nevada.....	12	3.65	Ohio.....	247	1.73
Delaware.....	18	3.56	New Jersey.....	129	1.70
New Mexico.....	35	3.42	Illinois.....	292	1.63
Maine.....	65	3.28	Oklahoma.....	98	1.61
Kentucky.....	209	3.27	West Virginia.....	46	1.18
Iowa.....	206	3.00	State not specified.....	148	1.56
Virginia.....	163	2.93			
Arizona.....	24	2.89	Total.....	7,315	2.66
California.....	219	2.71			

86. *Deficient chest measurement.*—Of this defect, 2,383 cases were recorded, being 0.9 per 1,000 of the men examined. Thus, a relatively small number of persons was found with defective chest measurement. Of those from which such measurements were recorded, the largest proportions were found in the New England States. Thus at the head of the list are Maine, New Hampshire, Vermont, and Rhode Island, and near the head, Massachusetts and Connecticut. Possibly this result is due to the greater care in measuring the chest at Camp Devens, to which these States are tributary. Not all densely populated States showed deficient chest measurement, for in the lower half of the list we find New Jersey, New York, Ohio, and Pennsylvania. The Southern States tend to lie in the middle or lower third of the list, with few defects.

TABLE 86.—Grand total for deficient chest measurement with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Maine.....	62	3.13	South Carolina.....	36	0.91
New Hampshire.....	26	3.05	Texas.....	106	.89
Vermont.....	20	2.38	Georgia.....	53	.83
Rhode Island.....	31	2.14	Pennsylvania.....	165	.82
Kentucky.....	102	1.60	Virginia.....	45	.81
Massachusetts.....	124	1.36	Ohio.....	109	.76
Colorado.....	30	1.33	Washington.....	27	.76
Missouri.....	112	1.31	Alabama.....	39	.75
Oregon.....	21	1.31	Maryland.....	27	.73
Arizona.....	10	1.21	New Mexico.....	7	.68
Wyoming.....	8	1.21	Oklahoma.....	38	.63
Utah.....	14	1.19	Wisconsin.....	40	.63
Indiana.....	83	1.16	Montana.....	17	.62
Connecticut.....	41	1.14	West Virginia.....	24	.62
Florida.....	26	1.08	New York.....	158	.61
Mississippi.....	40	1.06	Michigan.....	57	.58
Tennessee.....	65	1.06	Minnesota.....	37	.51
Arkansas.....	45	1.05	Nebraska.....	15	.51
North Carolina.....	57	1.03	Louisiana.....	26	.50
South Dakota.....	21	1.01	North Dakota.....	9	.50
California.....	81	1.00	Idaho.....	5	.40
Delaware.....	5	.99	New Jersey.....	30	.40
Kansas.....	38	.99	District of Columbia.....	3	.26
Iowa.....	67	.98	State not specified.....	13	.14
Illinois.....	165	.92			
Nevada.....	3	.91	Total.....	2,383	.87



87. *Underweight*.—Of this defect, which was usually ground for rejection, there were 72,972 cases, being 26.5 per 1,000 men. Table 87 and Plate XXXVIII, figure 3, show the distribution of the underweight by States. At the very head of the list lie the New England States, like Rhode Island, Maine, Vermont, Massachusetts, New Hampshire, while Connecticut falls in the upper half of the list. On the other hand, at the bottom of the list are certain sparsely settled States, like North Dakota, Arizona, Montana, Wyoming, South Dakota, Nebraska, and Kansas. It seems clear, then, that there is some relation between density of population and underweight, and this is probably due to the fact that the more densely populated States of New England have received a larger influx of such smaller races of Europe as the Polish Jews, Greeks, South Italians, and Portuguese than have the more sparsely populated frontier States of the West. On the other hand, some of the Southern States which have received few of the new migration contain a large proportion of men underweight, such as Tennessee, Georgia, Florida, Kentucky, South Carolina, and Louisiana. This result is probably due to the large number of persons from these States that are affected with malaria, hookworm, or with other parasites which tend to reduce the weight below standard. It is possible that in some cases, as in Kentucky and North Carolina, sufficient consideration was not given to the fact of physiological gauntness of certain tall families of Scotch origin.

TABLE 87.—Grand total for underweight with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Rhode Island.....	1,346	92.85	Indiana.....	1,718	24.02
Maine.....	1,227	61.90	Alabama.....	1,238	23.88
Vermont.....	437	51.93	Illinois.....	4,266	23.79
Massachusetts.....	4,690	51.32	Utah.....	279	23.71
Delaware.....	246	48.66	Washington.....	837	23.54
New Hampshire.....	400	46.95	Wisconsin.....	1,407	22.26
Tennessee.....	2,761	45.11	Ohio.....	3,019	21.13
Georgia.....	2,551	39.96	Mississippi.....	747	19.83
California.....	3,180	39.42	Oklahoma.....	1,198	19.72
Florida.....	871	36.11	Oregon.....	314	19.62
Kentucky.....	2,253	35.25	Arkansas.....	816	19.11
South Carolina.....	1,361	34.54	Michigan.....	1,768	17.87
Maryland.....	1,277	34.32	Minnesota.....	1,272	17.68
Louisiana.....	1,676	32.39	Idaho.....	201	16.10
Connecticut.....	1,076	29.96	West Virginia.....	508	13.06
Missouri.....	2,491	29.09	Kansas.....	492	12.81
New York.....	7,364	28.56	Nebraska.....	359	12.18
District of Columbia.....	329	28.52	South Dakota.....	251	12.08
Colorado.....	627	27.87	Wyoming.....	77	11.60
Virginia.....	1,483	26.65	Montana.....	317	11.56
New Mexico.....	271	26.49	Alaska.....	14	11.49
New Jersey.....	2,010	26.47	Arizona.....	86	10.37
North Carolina.....	1,435	25.91	North Dakota.....	160	8.96
Pennsylvania.....	5,155	25.49	State not specified.....	513	5.40
Nevada.....	80	24.30			
Texas.....	2,864	24.15	Total.....	72,972	26.50
Iowa.....	1,654	24.13			

88. *Under height*.—Of this category there were recorded 8,004 cases, or 2.9 per 1,000 of men examined. Table 88 and Plate XXXVIII, figure 4, show the geographical distribution of these cases by States. Here, as in the case of under weight and deficient chest measurement, the New England States stand at the head of the list. Rhode Island, Massachusetts, and Vermont have a rate of over

7 per mille, and New Hampshire, Maine, and Connecticut follow near the top. Also the States of New Jersey, New York, Pennsylvania, and Delaware are in the upper third of the list, while the Western States of Arizona, North Dakota, Kansas, and Nebraska come at the bottom of the list. Also most of the Southern States occupy a median or intermediate position. This result is clearly due to the presence in the population of our Eastern States of too large a proportion of representatives of short races, who were excluded from the draft by the limitations of acceptable height standards.

TABLE 88.—Grand total for under height with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Rhode Island.....	180	12.42	North Carolina.....	124	2.24
Massachusetts.....	684	7.48	Michigan.....	200	2.02
Vermont.....	59	7.01	Iowa.....	137	2.00
New Jersey.....	496	6.53	Colorado.....	44	1.96
Maryland.....	229	6.15	Indiana.....	135	1.89
New Hampshire.....	43	5.05	Tennessee.....	115	1.88
Maine.....	95	4.79	Ohio.....	263	1.84
New York.....	1,226	4.75	Missouri.....	153	1.79
Pennsylvania.....	933	4.61	District of Columbia.....	20	1.73
Delaware.....	23	4.55	Minnesota.....	122	1.70
Connecticut.....	160	4.46	Texas.....	200	1.69
New Mexico.....	44	4.30	Alaska.....	2	1.64
Oregon.....	60	3.75	Montana.....	45	1.64
Nevada.....	12	3.65	South Dakota.....	32	1.54
South Carolina.....	137	3.48	Mississippi.....	54	1.43
Florida.....	72	2.98	Georgia.....	89	1.39
Idaho.....	36	2.88	Oklahoma.....	82	1.35
Washington.....	101	2.84	Arkansas.....	53	1.24
California.....	224	2.78	Nebraska.....	36	1.22
Wyoming.....	18	2.71	Alabama.....	56	1.08
Virginia.....	148	2.66	Kansas.....	41	1.07
Utah.....	31	2.63	North Dakota.....	18	1.01
Kentucky.....	160	2.50	Arizona.....	6	.72
Louisiana.....	120	2.32	State not specified.....	38	.40
Illinois.....	414	2.31			
West Virginia.....	89	2.29			
Wisconsin.....	145	2.29	Total.....	8,004	2.91

89. *Grand total for defective physical development, deficient chest measurement, under weight, and under height.*—There are 90,674 cases included in this group, being 32.9 per 1,000 men examined. This group of defects is especially characteristic of the northeastern part of the country. Rhode Island leads with 11 per cent of the military population found with this group of defects. Then follow Maine, with 7 per cent; Vermont, 6.8 per cent; Massachusetts, 6.5 per cent; New Hampshire, with 5.9 per cent. This group of defects is that largely due to under height, and defective physical development found in the immigrants from southeastern Europe. Passing to the bottom of the list we find North Dakota with 1.3 per cent; Arizona, 1.5 per cent; Nebraska and Montana, 1.6 per cent; then follow Kansas, South Dakota, Wyoming, Idaho, Minnesota, Michigan, and Oklahoma, the States of the Great Plains region between the Mississippi Valley, including some of the Rocky Mountain States. This is a territory occupied by young men with good physical development, of good height and weight and chest measurement and comparatively free from congenital physical defects, although containing a large proportion of men with injuries and other mechanical and accidental defects.

The Southeastern States of Tennessee, Georgia, Florida, South Carolina, Louisiana, North Carolina, and Virginia lie in the upper half of the list. This includes a population which has been affected by malaria and hookworm and other conditions which have prevented good physical development. The State of New York, with its large population of recent immigrants from southeastern Europe, as well as a great rural population, occupies a position in the list, at the bottom of the upper third, whereas Illinois containing a greater proportion of immigrants from northwestern Europe occupies a position near the bottom of the middle third. Pennsylvania, with a mixed foreign and native population, occupies a central position.

TABLE 89.—Grand total for defective physical development, deficient chest measurement, under weight, under height, with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Rhode Island.....	1,631	112.51	Alabama.....	1,533	29.57
Maine.....	1,449	73.10	Washington.....	1,042	29.31
Vermont.....	575	68.33	Indiana.....	2,093	29.27
Massachusetts.....	5,902	64.53	Wisconsin.....	1,824	28.85
New Hampshire.....	504	59.16	Texas.....	3,408	28.74
Delaware.....	292	57.76	Illinois.....	5,137	28.65
Tennessee.....	3,214	52.51	Oregon.....	435	27.18
Georgia.....	3,115	48.79	Arkansas.....	1,117	26.16
California.....	3,704	45.91	Ohio.....	3,638	25.46
Florida.....	1,064	44.11	Mississippi.....	932	24.74
Maryland.....	1,616	43.43	Oklahoma.....	1,416	23.31
South Carolina.....	1,686	42.79	Michigan.....	2,228	22.52
Kentucky.....	2,724	42.62	Minnesota.....	1,617	22.48
Connecticut.....	1,412	39.32	Idaho.....	273	21.86
Louisiana.....	1,926	37.22	Alaska.....	24	19.70
New York.....	9,335	36.20	Wyoming.....	129	19.44
District of Columbia.....	406	35.19	West Virginia.....	667	17.15
New Jersey.....	2,665	35.10	South Dakota.....	351	16.89
New Mexico.....	357	34.89	Kansas.....	641	16.69
Colorado.....	783	34.81	Montana.....	435	15.86
Missouri.....	2,975	34.75	Nebraska.....	462	15.67
North Carolina.....	1,850	33.41	Arizona.....	126	15.19
Virginia.....	1,839	33.05	North Dakota.....	230	12.83
Pennsylvania.....	6,627	32.77	State not specified.....	712	7.50
Nevada.....	107	32.51			
Utah.....	382	32.46			
Iowa.....	2,064	30.11	Total.....	90,674	32.93

90. *Malnutrition*.—Under this category there were placed only 761 cases, being 0.3 per thousand men examined. The geographic distribution of these cases is shown in Table 90 and in Plate XIX, figure 3. From the table and charts we see at once that certain Southern States, such as South Carolina, Missouri, Arkansas, Louisiana, Florida, and Tennessee lie at or near the upper end of the list, whereas certain Western States, such as Utah, Nevada, Montana, and Arizona show no cases of malnutrition, and Nebraska, North Dakota, and New Mexico only one each. The high incidence of malnutrition in the Southern States is no doubt associated with the presence of parasites already referred to, and the absence of malnutrition in the sparsely populated States is due to the absence of such parasites. There is very little evidence of malnutrition, due to overcrowding, in the more densely populated States, as Rhode Island, New Jersey, Delaware, Illinois, and New York, which lie in the middle third of the list, while Connecticut lies near the top of the list.



TABLE 90.—Grand total for malnutrition, with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Alaska.....	1	0.82	South Carolina.....	9	0.23
North Carolina.....	37	.67	Wisconsin.....	13	.21
Missouri.....	55	.64	Delaware.....	1	.20
Arkansas.....	24	.56	Mississippi.....	7	.19
Connecticut.....	18	.50	South Dakota.....	4	.19
Louisiana.....	26	.50	Illinois.....	32	.18
Indiana.....	34	.48	New York.....	47	.18
Florida.....	11	.46	Virginia.....	10	.18
Tennessee.....	28	.46	Idaho.....	2	.16
Iowa.....	29	.42	Pennsylvania.....	33	.16
Colorado.....	9	.40	Washington.....	5	.14
Kansas.....	15	.39	Georgia.....	8	.13
Oklahoma.....	23	.38	Texas.....	16	.13
Alabama.....	19	.37	New Hampshire.....	1	.12
Oregon.....	6	.37	Maryland.....	4	.11
Massachusetts.....	33	.36	New Mexico.....	1	.10
Ohio.....	52	.36	District of Columbia.....	1	.09
Rhode Island.....	5	.34	North Dakota.....	1	.06
Michigan.....	33	.33	Nebraska.....	1	.03
Kentucky.....	20	.31	Arizona.....		
Minnesota.....	22	.31	Montana.....		
Wyoming.....	2	.30	Nevada.....		
New Jersey.....	22	.29	Utah.....		
West Virginia.....	10	.26	State not specified.....	4	.04
California.....	20	.25			
Maine.....	5	.25			
Vermont.....	2	.24	Total.....	761	.23

91. *Anorchism, monorchism, cryptorchidism.*—The total number of cases of these defects is 8,538, or 3.1 per thousand men examined. The distribution of these defects by States is shown in Table 91 and Plate XXXIII, figure 4. A consideration of the table and charts shows that they are commonest in the States of the Northwest. Thus, Minnesota, Montana, Colorado, and South Dakota stand at the head of the list and Idaho, North Dakota, Washington, Oregon, Wisconsin, and California fall in the upper half of the list. On the other hand the States of the Southeast have the smallest proportion of these defects. Thus, Alabama, North Carolina, Georgia, Florida, Louisiana, Arkansas, Tennessee, and Mississippi lie near the bottom of the list, and South Carolina and Virginia lie in the lower half of the list. The more densely populated of the eastern States such as Rhode Island, Massachusetts, and Connecticut lie in the upper third of the list and Illinois and New York in the upper half of the list. The sparsely settled States like Arizona, Kentucky, Wyoming, and New Mexico lie in the lower half of the list.

TABLE 91.—Grand total for anorchism, monorchism, cryptorchidism with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Minnesota.....	340	4.73	New Mexico.....	32	3.13
Montana.....	128	4.67	Indiana.....	223	3.12
Colorado.....	104	4.61	Kansas.....	119	3.10
South Dakota.....	91	4.38	West Virginia.....	121	3.11
Rhode Island.....	63	4.35	Michigan.....	303	3.06
Idaho.....	54	4.32	Oklahoma.....	185	3.04
District of Columbia.....	48	4.16	Wyoming.....	20	3.01
Iowa.....	270	3.93	Pennsylvania.....	601	2.96
Vermont.....	33	3.92	South Carolina.....	109	2.76
North Dakota.....	69	3.86	Virginia.....	150	2.70
Washington.....	137	3.85	Kentucky.....	160	2.50
Massachusetts.....	345	3.78	Ohio.....	354	2.48
New Hampshire.....	32	3.75	Maryland.....	87	2.33
Texas.....	438	3.70	Mississippi.....	87	2.32
Connecticut.....	128	3.56	Tennessee.....	134	2.18
Oregon.....	57	3.55	Arkansas.....	86	2.02
Wisconsin.....	224	3.54	Louisiana.....	103	2.00
California.....	284	3.53	Florida.....	48	1.99
Illinois.....	613	3.42	Georgia.....	122	1.92
New York.....	872	3.38	North Carolina.....	105	1.90
Nevada.....	11	3.34	Alabama.....	90	1.74
New Jersey.....	254	3.34	Arizona.....	14	1.69
Alaska.....	4	3.28	Delaware.....	5	.99
Missouri.....	276	3.24	State not specified.....	211	2.22
Utah.....	38	3.22			
Maine.....	63	3.17	Total.....	8,538	3.10
Nebraska.....	93	3.15			

\*On examining the foregoing distribution, it seems probable that the high rates are due to a racial peculiarity of the inhabitants of the northwestern tier of the States on the one hand, and of the more densely populated parts of New England on the other. The defects of this group are believed to be relatively uncommon in the colored population, which accounts for the low rate in the Southeastern States. The intermediate States, with a small amount of both foreign and negro population, contain the intermediate ratios of this group of defects.

92. *Cleft palate and harelip.*—This group does not contain many cases, only 1,466 from the entire United States, or 0.5 per thousand men examined. On account of the small numbers found in individual States, the ratios are less significant than in the case of group No. 71. The distribution of the defects by States is given in Table 92 and Plate XXX, figure 4. An examination of the table and charts reveals the fact that these defects are commonest in the northeastern section of the country. Vermont leads, followed by Maine; and in the upper half of the list are New Hampshire, Rhode Island, and Massachusetts. The States of the northwest are, on the whole, in the upper part of the list. Thus North Dakota has a ratio of 1.0 per thousand men; Utah, 0.9; Colorado, 0.8; Minnesota, 0.7; South Dakota, 0.6; Washington, 0.6; Montana, 0.5; and Wisconsin, 0.5. Also the Southeastern States are prevailing in the lower half of the list. This includes Arkansas with a ratio of 0.2, Georgia, North Carolina, and Alabama (with ratios of 0.3 per mille), Florida, South Carolina, Missouri (with ratios of 0.4 per mille), Virginia, Mississippi, Tennessee (with ratios under 0.5 per mille). Louisiana is one of the Southeastern States which gives a ratio above the average. The more populous States of the

East, like New York, Connecticut, and Massachusetts, occupy a position in the middle third of the list, but Illinois is in the lower third.

A consideration of the foregoing facts shows that on the whole the distribution of cleft palate and harelip is roughly similar to that of congenital defects of the testes, and it appears that such developmental defects are especially common in the population of the Northwestern States, next of the New England States, next of the States of the middle zone, and least in the States of the Southeast. Since developmental defects are in general rarer among the colored than white persons, the low rate of the Southeastern States is to be accounted for by the large Negro plantation there. It appears that the recent immigrated European races, which form so large a part of the recent immigration into the Northwestern States and those of New England, are responsible for bringing in a large proportion of developmental defects.

TABLE 92.—Grand total for cleft palate, harelip, with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Vermont.....	13	1.55	Tennessee.....	30	0.49
Maine.....	29	1.46	Mississippi.....	18	.48
North Dakota.....	18	1.01	New York.....	125	.48
Utah.....	11	.93	Virginia.....	26	.47
Oklahoma.....	55	.90	Connecticut.....	16	.45
New Hampshire.....	7	.82	Missouri.....	38	.45
Kansas.....	31	.81	South Carolina.....	17	.43
Colorado.....	17	.76	Florida.....	10	.41
Rhode Island.....	11	.76	Delaware.....	2	.40
Iowa.....	52	.75	New Mexico.....	4	.39
Kentucky.....	47	.74	Illinois.....	68	.38
Minnesota.....	52	.72	Oregon.....	6	.37
Louisiana.....	36	.70	Alabama.....	18	.35
Texas.....	82	.69	North Carolina.....	19	.34
Indiana.....	48	.68	Georgia.....	21	.33
Pennsylvania.....	132	.65	New Jersey.....	25	.33
South Dakota.....	13	.63	Idaho.....	4	.32
Nebraska.....	18	.61	Maryland.....	10	.27
Nevada.....	2	.61	Arizona.....	2	.24
Ohio.....	88	.61	District of Columbia.....	2	.18
Massachusetts.....	54	.59	Arkansas.....	7	.16
Washington.....	21	.59	Alaska.....		
West Virginia.....	23	.59	Wyoming.....		
Montana.....	14	.51	State not specified.....	3	.03
Wisconsin.....	32	.51			
California.....	40	.50			
Michigan.....	49	.49	Total.....	1,466	.53

93. *Bullet or other recent wounds.*—This again is a small group, containing only 1,391 cases, or 0.5 per thousand men examined. The distribution of this group by States is shown in Table 93 and Plate XL, figure 1. A consideration of the table and charts shows a distribution that is somewhat irregular; a result which is to be expected owing to the small number of cases in any State. In general, however, one may note that this grouping of defects is found to a much higher degree in the States of the Southeast than of the Northeast. Thus Georgia, Mississippi, Virginia, North Carolina, South Carolina, Alabama, Tennessee, Arkansas, Florida, and Louisiana stand near the head of the list and none of the Southeastern States lie in the lower half of the list. On the contrary, New Hampshire, Rhode Island, New York, New Jersey, Pennsylvania, Massachusetts, Connecticut, and Maine stand in the lower half of the list and there is no one of



the New England States in the upper half of the list. Similarly, the Western States exceed the Eastern States. Thus Wyoming, New Mexico, Texas, Utah, California, Kansas, Colorado, Montana, Oklahoma, and South Dakota stand in the upper part of the list, though Oregon, Idaho, and Arizona (each with only four cases) fall in the lower half of the list. Contrarywise, excepting Delaware, all of the Eastern States stand in the lower half of the list. It appears then that the Southeastern States and those of the West are characterized by a high percentage of bullet and other recent wounds, and the more highly organized States of the Northeast or central parts of the country show relatively few such defects.

TABLE 93.—Grand total for bullet or other recent wounds with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Alaska.....	3	2.46	Nebraska.....	14	0.47
Wyoming.....	9	1.36	North Dakota.....	8	.45
Georgia.....	84	1.32	Michigan.....	43	.43
Mississippi.....	41	1.09	Missouri.....	35	.41
Delaware.....	5	.99	Ohio.....	58	.41
Virginia.....	55	.99	Iowa.....	27	.39
North Carolina.....	53	.96	Connecticut.....	13	.36
South Carolina.....	38	.96	Vermont.....	3	.36
Alabama.....	47	.91	Indiana.....	25	.35
New Mexico.....	9	.88	Maryland.....	13	.35
Tennessee.....	53	.87	Illinois.....	61	.34
Arkansas.....	36	.84	Wisconsin.....	21	.33
Florida.....	20	.83	Idaho.....	4	.32
Texas.....	95	.80	Massachusetts.....	29	.32
Utah.....	9	.76	Minnesota.....	20	.28
Louisiana.....	37	.72	Pennsylvania.....	54	.27
Kentucky.....	43	.67	District of Columbia.....	3	.26
California.....	48	.60	Oregon.....	4	.25
Kansas.....	23	.60	New Jersey.....	18	.24
West Virginia.....	23	.59	New York.....	53	.21
Colorado.....	13	.58	Rhode Island.....	2	.14
Montana.....	16	.58	New Hampshire.....	1	.12
Oklahoma.....	34	.56	Nevada.....	.....	.....
South Dakota.....	11	.53	State not specified.....	44	.46
Washington.....	19	.53			
Maine.....	10	.50			
Arizona.....	4	.48	Total.....	1,391	.51

94. *Grand total for mechanical defects.*—This includes curvature of the spine, arthritis, hernia, enlarged inguinal rings, results of fracture, amputations, ankylosis, defective feet and hands, general deformities of appendages and trunk, and muscular atrophies. This includes 593,290 defects, or 215.4 per 1,000 men examined, including over one-fifth of all. The distribution of these defects by States is given in Table 94 and Plate XXXIX, figure 4. An examination of the table and charts shows that the greatest number of the mechanical defects is found in the Northwest. Wyoming stands at the head of the list, with mechanical defects in 37 per cent of the men examined. Oregon comes second, with 35 per cent, and Colorado third, with 30 per cent. Alaska comes fifth, with 29 per cent; California sixth, with 29 per cent; Utah, Idaho, Washington, Montana, and Nevada all lie in the upper third of the table. On the other hand, the mechanical defects are relatively uncommon in the Southeast. Thus, in Kentucky only 12 per cent of the men examined had such defects; in Arkansas, 13 per cent; South Carolina, 14.7 per cent; and Louisiana, Mississippi, Alabama, Tennessee, Georgia, and Oklahoma all lie in

the lower third of the list. However, Virginia and Florida lie in the upper third, with 29.7 and 26.8 per cent of the population found with mechanical defects. The high per cent of mechanical defects found in Virginia and West Virginia is largely due to the great stress laid upon the orthopedic examination at Camp Lee and to the special training which was given to the local examiners in these States as to the importance of finding mechanical defects. We may conclude, therefore, that the northwestern part of the country is characterized by mechanical defects, no doubt largely due to the accidents associated with frontier life. The people of the southeastern part of the country have been largely free from such accidents, and, as we have seen, their feet are in better condition, largely due to absence of shoes. For the rest of the country the more rural sections have a smaller proportion of mechanical defects than the urban section, again largely due to the injury done to the feet by shoes, and especially the fashionable shoes worn by people in cities.

TABLE 94.—Grand total for mechanical defects with ratio per 1,000 men.

State.	Number of cases.	Ratio per 1,000.	State.	Number of cases.	Ratio per 1,000.
Wyoming.....	2,459	370.60	Delaware.....	1,078	213.26
Oregon.....	5,584	348.95	Nebraska.....	6,212	210.74
Colorado.....	6,743	299.75	Maryland.....	7,841	210.70
Virginia.....	16,520	296.90	Connecticut.....	7,562	210.58
Alaska.....	357	293.12	Ohio.....	29,340	206.34
California.....	23,584	292.41	New Jersey.....	15,024	197.89
West Virginia.....	10,850	278.85	Indiana.....	13,982	195.49
Utah.....	3,262	277.14	North Carolina.....	10,728	193.72
Idaho.....	3,413	273.27	Iowa.....	13,256	192.73
Washington.....	9,593	269.82	Oklahoma.....	11,512	189.43
Florida.....	6,470	268.20	Kansas.....	7,062	183.78
Montana.....	7,174	261.65	Arizona.....	1,509	181.90
Nevada.....	849	257.90	Georgia.....	10,846	169.94
Rhode Island.....	3,698	255.11	New Mexico.....	1,732	169.29
Wisconsin.....	15,910	251.77	Tennessee.....	10,296	168.25
Pennsylvania.....	49,621	245.35	Texas.....	19,925	168.02
Vermont.....	2,056	244.34	South Dakota.....	3,437	165.44
North Dakota.....	4,285	239.89	Alabama.....	8,563	165.19
New Hampshire.....	1,987	233.23	Mississippi.....	5,759	162.85
Illinois.....	41,788	233.05	Louisiana.....	7,889	161.51
District of Columbia.....	2,689	233.00	South Carolina.....	5,788	146.90
Maine.....	4,617	232.94	Arkansas.....	5,545	129.89
Missouri.....	19,829	231.56	Kentucky.....	7,901	123.61
Massachusetts.....	20,481	224.13	State not specified.....	23,449	250.12
Michigan.....	22,021	222.54			
Minnesota.....	15,892	219.88			
New York.....	55,372	214.70	Total.....	593,290	215.43

## II. THE NUMBER OF DEFECTIVE MEN FOUND IN 2,510,596 MEN EXAMINED.

There were found in 2,510,596 registrants examined 1,289,403 men with defects sufficient for notice (Table 2); that is, slightly more than half (51 per cent) of the men examined. The proportion of defective men from the different States varied from 64 per cent to 35.4 per cent. The order of percentage of defective men found in the accepted States is shown in Table 2 (see also, Pl. I, fig. 4 and Pl. XVII, fig. 2). As this table shows, Rhode Island stands at the head of the list with nearly two-thirds of the men examined found with defects worthy of note, and second in the list comes Vermont. The reason for the large proportions in these two States is difficult to give with certainty. On the one hand, it might be thought to be due to



the more careful examination of men of registrants at local boards or at camps. It is true that both States were tributary to Camp Devens which has, with one exception, the highest rejection rate of any camp. We must believe that this result is due in part, at least, to the conscientiousness and intelligence of the examiners at this camp. Moreover, Rhode Island, which is the most densely populated of all States, doubtless had medical examiners at local boards who were men of unusual training and experience, just as the examiners in cities in general showed themselves to be men of better training than those of rural districts. Finally, Rhode Island and Vermont have this in common that they contain a large proportion of Canadian French in their population. According to the United States census in 1910, 11.4 per cent of the population of Rhode Island was of Canadian French origin and of Vermont 7.8 per cent. It is true that New Hampshire has an even higher percentage of Canadian French, perhaps 15 per cent, and New Hampshire stands at the top of the middle third of the list. We find, moreover, that the sum of the sections of the country inhabited by French Canadians has a very high ratio of defective men.

Probably the reason for the high position of Rhode Island and Vermont is due to a combination of the three factors mentioned above, namely, the thoroughness of the examinations made by local boards, the intelligence and care exercised at Camp Devens and the high percentage of French Canadians in the population. These conditions affected to a less extent Maine which stands sixth in the list and New Hampshire which stands seventeenth in the list.

On the other hand, Kansas stands at the very bottom of the list with only 35.4 per cent of the men examined found to be defective. South Dakota stands second from the bottom with 37.3 per cent of the men examined found defective. These two States were both examined at Camp Funston which, with four exceptions, stands lowest in the rejection rate of all camps. Kansas and South Dakota are among the most rural of States. They differ, however, in that Kansas has a high proportion of native-born whites of native-born parents (about 70 per cent) while South Dakota has a small proportion of such population, namely, about 25 per cent. The foreign population of Kansas is in part German and in small part Russian, and in South Dakota the prevailing foreign population is Scandinavians, Russians and Germans. The reason why these two States stand at the bottom of the list is probably a combination of just the opposite conditions as found in the case of Rhode Island and Vermont; namely, first, small urban population and correspondingly less specially trained, effective and experienced medical examiners at local boards; secondly, a small defect rate at Camp Funston; and third, absence of French Canadians and a relatively larger proportion of Germans and Russians. The Russians have, indeed, a lower defect rate than the French Canadians as 59.2 is to 68.4 per cent. The defect rate of the Scandinavians is still lower, being 54.3 per cent and the German-Austrians is still lower, being 53.9 per cent. Naturally, those States which have a large percentage of races with a low defect rate will stand toward the bottom of the list of States arranged in order of percentage of defective men. However, it is not to be implied that conditions in the Great Plains region and the nature of the men



who are attracted to this section of the country do not tend toward the bringing together and the rearing in those States a stock relatively devoid of defects.

The location of the remaining States in the list is determined by a combination of factors already considered, namely, ideals of examiners at local boards, ideals of medical examiners at mobilization camps, the peculiarities of the racial constitution of the population, and the presence or absence of special diseases affecting the whole population. On account of the multiplicity of causes it is difficult to draw definite conclusions from the relative position of the States as listed in Table 2. Thus, because Arkansas, Mississippi, Louisiana, Alabama, and Georgia lie in the lower half of the list, it is not to be concluded that the climate of these States is especially healthier than that of the average State. We find, indeed, that Camp Gordon, to which Georgia and part of Alabama are tributary, has a rather low percentage of rejections, although Camp Pike, to which Arkansas and Mississippi are tributary, has a rather high percentage. Certain special conditions determine the relatively low position of the Southern States, and first of all the small amount of flat foot found there. This advantageous condition of the feet of the men of the Southern States outweigh the higher incidence of venereal diseases. Similarly, the hernia rate ran lower in the Southern States. On the other hand, because of the large number of men found with foot and hernia defects in the North, the total ratio of defective men of the Northern States tends to exceed those of the Southern States. This matter will be further discussed in the next section, which deals with the total defects and diseases in the United States by States. (Table 74.) As a matter of fact, Table 74 runs closely parallel with Table 75.

### III. TOTAL DEFECTS AND DISEASES AS FOUND IN THE DIFFERENT STATES.

Table 1 gives the distribution by States of 1,533,938 defects found in the 2,510,595 men physically examined and considered in this report. These defects thus occurred at the rate of 61 per 100 men examined. The rate is naturally larger than the rate of defective men since some men had more than one defect. There are about 114 defects per 100 defective men examined. In this table, as in Table 2, Rhode Island and Vermont stand at the head of the list and Kansas and South Dakota at the bottom. Rhode Island shows a ratio of 802 defects per 1,000 men examined. This high position is due to the sum of a number of component defects in which Vermont stands extraordinarily high as shown in Tables 1-94, inclusive. Thus, Rhode Island stands first or second in the ratio for obesity, alcoholism, hemiplegia, apoplexy and other minor paralysis, neurosis, defective vision, otitis media, bronchitis, deformities of various sorts, atrophy of the appendicular muscles, under weight (9.3 per cent), under height (1.2 per cent), myopia and defective vision, cause not stated (6 per cent), grand total for all eye defects, including blindness (7 per cent), and for general defective physical development, including under height and under weight, over 11 per cent. It is above all because of the bad physical development, in-

cluding bad eyes and ears of the men from Rhode Island, that this State stands at the head of the list. It must not be forgotten, however, that the number of defects found depends also, as stated in the preceding section, upon the careful examination made by the physicians of local boards and at Camp Devens.

Vermont stands second in total defects found; of 764 per 1,000 men examined. The high position that Vermont takes is due to the fact that it stands first or second in the following defects or diseases. It stands first in curvature of the spine, second in diabetes mellitus, first in epilepsy, deafness, constitutional psychopathic state, mental deficiency, manic depressive psychosis, other psychoses, loss of upper extremity, and second for bronchitis and atrophy of muscles of the extremities. Vermont stands first in proportion of harelip, and of defective and deficient teeth (4.7 per cent). Summarizing, Vermont stands almost in a class by itself in the total number of mental defects found and stands second in total deformities found, deafness of all types and mental deficiency (3 per cent). It may be added that (as Table XXXIII, consolidation of similar sections shows), French Canadians stand high in defective and physical development, underweight (nearly 7 per cent), underheight, defective vision (5.4 per cent), and mental deficiency (1.5 per cent).

Passing on to the other end of the table, we find that Kansas had the smallest number of defects per 1,000 men examined, as it had the smallest number of defective men. The ratio of defects found is 412 per 1,000 men examined. In a preceding paragraph has been discussed the various reasons for the small number of defective men found in Kansas, and these reasons apply also to total number of defects found in the defective men. The proportion of defects found in the rejected men is relatively very low, being 1.03 times the number of defective men. The fact that the number of defects found per defective man is so small suggests uncritical work. If we inquire particularly into the defects which are relatively uncommon in Kansas, we find total cardiac arrhythmias, asthma, and defective and deficient teeth. It, the position of Kansas at the bottom of the list, is not so much due to the special rarity of certain common defects as it is due to a uniformly low average position of Kansas in the list for many of the different defects, especially the commoner defects that play a relatively large rôle in the tables. Thus, Kansas stands in the lower third in tuberculosis, curvature of the spine, diabetes, alcoholism, minor paralysis, epilepsy, defective speech, myopia, otitis media and defective hearings, sinusitis, endocarditis and valvular diseases of the heart, cardiac hypertrophy, myocarditis, arteriosclerosis, chorea, hernia, enlarged inguinal rings, hemorrhoids, varicocele and varicose veins, defective physical development, and mechanical defects of various sorts. It is above all in certain conditions that are most difficult to detect, like heart disease and defects, that the Kansas rate stands low.

The factors, beside those mentioned in the last two sections and variations in criticalness of the medical examiners, upon which the State rate depends, can best be determined by a study of Plate XVII, figure 1. One will note, for example, that Virginia stands



high among the defects, among other things because its ratio for pulmonary tuberculosis is high, that for mental deficiency is high, the total of venereal diseases found is relatively higher, etc. Always, however, one must keep in mind the varied standards of physical examiners at local boards and camps. Taking the table as it stands, one may say that a larger proportion of men in the northeastern part of the United States were found to have some defect than in any other part of the country; that the smallest number of defects found per 1,000 men was found in the southwestern part of the country, that the Southeastern States lie relatively lower than the densely populated States of the middle zone; that the extreme Northwest showed defects somewhat above the average, particularly Oregon, California, and Washington, which stand high in the list. Alaska also occupies a relatively high position (seventh place) with a ratio of 685 defects reported in every thousand men examined.

#### E. THE "GROUPING" OF MEN BY CAMP MEDICAL EXAMINERS.

#### I. VARIATIONS IN THE PROPORTIONS OF MEN ACCEPTED FROM THE DIFFERENT STATES DESPITE DEFECTS.

Table 4 shows the total number of defective men accepted for general or special military service in groups A, B, and C. The rate per thousand men ran from 445 down to 208. The largest ratio of men accepted despite defect is found in the State of Virginia, a State that stands third in the total ratio of defective men. The high ratio of acceptance despite defects is therefore due in a considerable extent to the high proportion of defective men found. The smallest number of men accepted despite defect is from the State of Kentucky. It does not follow that the tables of total defective men found and total men accepted despite defect run closely parallel throughout. For example, South Carolina stands eleventh from the bottom in the number of defective men found, but it stands fourth from the bottom in men accepted despite defects. The reason for this is that whereas South Carolina shows a fairly small proportion of defective men, yet of such defective men so large a proportion were rejected that the State stands low in the list of men accepted with defect. Indeed, one might conclude by a study of the table that in many of the Southern States, like South Carolina, Arkansas, Louisiana, Mississippi, Texas, and Georgia, the ideal of physical perfection requirement for military service was placed exceptionally high, so that there were relatively few defective men accepted in these States. On the other hand, in Wyoming, Colorado, West Virginia the ideals held as to the quality of men acceptable for general military service were relatively low, so that these States stand proportionately high in the proportion of men accepted for military service despite defect. Again, while Rhode Island stands first in the proportion of defective men found, it stands fourteenth in order of defective men accepted for military service. This implies either that the defects found in Rhode Island were of great importance from the standpoint of the Army, or that the local board and camp examiners of men from Rhode Island (and the same is true of the other New England States) had relatively high ideals of the requirements for military service, so that they accepted relatively few of their



defective men. The latter consideration is relatively very important in determining the position of the New England States in Table 77.

## II. REJECTIONS FOR ANY MILITARY SERVICE, BY STATES.

Table 3 shows the total number of men rejected for any military service both by local boards and by camp examiners. To a limited extent only does Table 3 run parallel to Table 2, which gives the number of defective men by States. It is true that in both tables Rhode Island and Vermont head the list, but in the table of rejections only, and not in Table 2, two other New England States—Maine and Massachusetts—occupy third and fourth places, while Connecticut and New Hampshire come somewhat lower down the list. It is clear that the ideals for acceptance of the examiners at Camp Devens and to a certain extent also of the local board examiners throughout New England were very high. On the other hand, Wyoming, which stood in the upper third of the list in its ratio of defective men, stood at the bottom of the list in the proportion of men rejected. That is to say, camp examiners and those of local boards were relatively liberal in their ideals of defects that would permit of military service, so that they rejected only 128 per thousand, though defects were found in 514 per 1,000 men examined. In other words, Wyoming rejected only about one-fourth of the men that were found with defects. In general, it will be found that the States of the Northwest stood rather high in the relative number of defective men found, yet they stand rather low in the proportion of rejections for any military service. Thus the following States rejected less than 200 per 1,000 men: Wyoming, Nebraska, Kansas, Arizona, Montana, North Dakota, Idaho, Nevada, South Dakota, Minnesota, Alaska, and Wisconsin. Most of these States were tributary to Camp Funston and Camp Lewis. At Camp Funston, at any rate, the proportion of men rejected (3.8 per cent) was relatively low. At Camp Lewis the proportion rejected was relatively high (7.4 per cent). The States of the Southeast had a median rate of rejection, and those of the middle zone of the country vary greatly in the proportion of rejections in the different States.

## III. THE SPECIAL OR LIMITED SERVICE GROUP OF RECRUITS.

As stated in Chapter B, the Selected Service Regulations of November 8, 1917, which became effective about December 15, 1917, established in section 88 a group of "men physically disqualified for general military service but able to do special or limited military service," and it was provided that "in each case in which the registrant is found to be physically disqualified for general military service, the examining physician will ascertain the nature of the trade, profession, or other civil occupation of the registrant, and will report to the local board in the proper space on form for physical examination whether in his judgment the registrant is physically capable of rendering special or limited military service in such trade, profession, or occupation, or in a similar capacity." In Form 1010, P. M. G. O., upon which the physical examiners recorded their findings, a special space was provided for noting if the man was qualified

for special or limited military service, and for naming the occupation for which he was qualified.

The extent to which this class, which eventually became known as group "C," was utilized is indicated by the fact that in the 1,533,937 defects considered in this study, 59,722, or 38.9 per 1,000, were so classified. It will be instructive to consider the distribution of these 59,722 defects with reference both to the nature of the defects which led to classifying in group C, and also with reference to the differences in the degree of utilization of group C by the different States. As it will not be worth while to discuss each one of the 269 defects named in the table, only some of the more significant ones will be here considered. (Tables IV, V, VI, VII, XI, XII; figure 2.)

#### A. THE DEFECTS CLASSIFIED IN GROUP C.

1. *Pulmonary tuberculosis*.—Of this disease, which gave the highest rejection rate of any of the diseases, only 7 per 1,000 of the cases were assigned to group C, a rate which is less than one-fifth the ratio of all defects found in group C. This is as was to have been expected, as frank pulmonary tuberculosis was disqualifying for almost any sort of military service.

TABLE 95.—*Proportion per 1,000 of cases of each disease or defect listed to the total number of defects or diseases in the particular group under which the proportion is shown in 1,961,692 inducted men examined at camp and in 549,099 men rejected by local boards (reading down page).*

Diseases.	Group A.	Group B.	Group C.	Group D.	Group Vg.	Total defects or diseases.
Tuberculosis (all).....	1.61	6.58	8.03	63.22	100.09	53.50
Venereal (all).....	126.17	29.61	17.26	35.97	8.30	58.28
Goitre, exophthalmic.....	6.20	1.64	4.79	13.06	8.28	4.14
Goitre, simple.....	13.87	6.58	7.67	5.04	3.22	7.80
Paralysis, major and minor.....	.17	.....	1.84	2.82	11.57	5.71
Epilepsy.....	.15	1.64	.42	10.07	17.71	9.25
Neurasthenia and hysteria.....	.16	1.64	1.22	5.42	1.40	1.60
Constitutional psychopathic state.....	.04	.....	1.05	5.18	.80	.99
Mental deficiency.....	.64	6.58	4.99	20.50	48.14	25.94
Psychoneurosis and psychasthenia.....	.06	.....	1.02	6.70	.76	1.15
Errors of refraction and defective vision (cause not stated).....	15.40	14.80	135.78	76.02	86.42	59.11
Trachoma.....	.43	.....	.23	4.98	3.81	2.46
Otitis media and perforated ear drum.....	2.34	6.58	4.52	29.23	24.31	15.39
Defective hearing.....	.87	1.64	9.31	5.00	18.82	9.83
Tonsillitis hypertrophic.....	98.08	75.66	25.62	10.30	1.17	41.45
Valvular diseases of heart.....	6.51	9.87	32.97	65.09	102.32	59.42
Hemorrhoids.....	2.25	50.99	2.90	3.12	1.73	2.15
Varicocele.....	9.26	26.32	5.39	3.65	34.42	5.84
Varicose veins.....	2.92	14.80	9.91	11.22	10.21	7.43
Functional cardiac conditions.....	1.78	1.64	22.25	18.19	16.78	11.22
Asthma.....	.32	1.64	1.22	8.81	7.16	4.41
Defective and deficient teeth.....	6.06	11.51	107.72	60.83	23.98	24.21
Hernia.....	30.74	470.39	45.36	85.75	30.45	37.40
Enlargement of inguinal rings.....	80.74	23.03	25.20	9.11	.42	34.09
Cicatrical contractures and deformities.....	.36	3.29	2.93	2.37	1.55	1.61
Malunion of fractures.....	3.41	3.29	22.72	16.88	8.82	8.11
Ankylosis of joint.....	8.00	4.93	24.48	21.35	12.42	12.12
Pes planus.....	435.99	36.18	151.30	72.82	22.21	196.32
Defects of feet other than pes planus.....	56.05	13.16	67.22	41.52	11.02	34.77
Loss of one or more fingers.....	8.46	1.64	20.38	9.00	8.64	9.07
Loss of part of, or deformity of, extremities other than hands and feet.....	2.84	8.22	18.55	12.35	55.03	32.92
Defective physical development and deficient chest measurement.....	.67	.....	3.57	8.11	11.03	6.32
Underweight and underheight.....	4.85	13.16	69.74	49.10	93.86	52.79
Congenital genital defects.....	7.73	13.16	4.91	6.55	3.32	5.48
All others.....	64.87	139.83	137.53	200.67	208.93	157.72
	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00



TABLE 96.—Proportion of the various defects listed per 1,000 of the total for that particular defect as classified in the various groups by the medical boards at camps and by the local boards (reading across page).

Disease.	Group A.	Group B.	Group C.	Group D.	Class Vg.
Epilepsy.....	6.55	0.07	1.76	119.69	871.93
Mental deficiency.....	9.80	.10	7.49	137.21	845.41
Tuberculosis.....	11.91	.05	5.85	129.97	852.22
Major and minor paralysis.....	12.08	.....	12.54	54.26	921.12
Asthma.....	29.15	.15	10.80	219.86	740.05
Psychasthenia and psychoneuroses.....	21.60	.....	34.68	642.98	300.74
Constitutional psychopathic state.....	15.11	.....	41.39	574.24	369.25
Defective physical development.....	38.69	.....	24.06	171.16	766.10
Loss or deformity of extremities other than hands or feet (exclusive of malunion of fracture).....	39.64	.12	25.55	48.06	886.64
Neurasthenia.....	28.11	.....	38.15	390.23	543.51
Valvular diseases of the heart.....	44.68	.08	22.28	124.22	808.75
Deficient chest measurement.....	52.04	.....	15.53	49.10	883.54
Otitis media and perforated ear drum.....	60.15	.17	11.44	208.87	719.37
Defective hearing.....	34.82	.06	36.88	55.92	872.31
Trachoma.....	69.65	.....	3.71	222.46	704.18
Goitre, exophthalmic.....	43.37	.12	33.08	254.77	668.67
Under height and under weight.....	36.33	.10	51.42	102.29	809.85
Hysteria.....	88.92	1.56	24.96	514.82	369.73
Functional cardiac disorders.....	62.57	.06	77.28	178.46	681.63
Errors of refraction and defective vision, cause not stated.....	102.98	.10	89.44	141.45	666.03
Varicose veins.....	155.23	.79	51.95	166.02	626.01
Cicatricial contractures and deformities.....	116.74	1.07	93.28	213.22	575.69
Defective and deficient teeth.....	99.00	.18	173.25	276.37	451.19
Malunion of fractures.....	166.20	.16	109.11	228.99	495.54
Ankylosis of joint.....	260.62	.16	78.64	193.72	466.87
Hernia.....	324.83	4.99	47.22	252.14	370.83
Loss of one or more fingers.....	368.91	.07	87.52	109.23	434.27
Hemorrhoids.....	412.17	9.39	52.39	159.60	366.44
Congenital genital defects.....	557.19	.95	34.84	131.39	275.62
Varicocele.....	626.66	1.79	35.95	68.66	266.94
Defects and deformities of feet (exclusive of pes planus).....	637.11	.15	75.26	131.35	156.14
Goitre, simple.....	702.45	.33	38.26	71.00	187.94
Venereal diseases.....	855.55	.20	11.53	67.88	64.88
Pes planus.....	877.60	.07	30.01	40.79	51.52
Tonsillitis, hypertrophic.....	935.02	.72	24.06	27.33	12.86
Enlargement of inguinal rings.....	935.94	.27	28.78	29.39	5.62
Total grouping of defects, all men considered.....	395.18	.40	38.93	109.98	455.51

2. *Syphilis*.—Only 8.7 per 1,000 of recruits found with this disease were assigned to Group C, being something more than one-fifth of what may be called the standard ratio of assignment to this group. This ratio is small, probably because it was considered that if the degree of syphilis did not justify rejection for other military service it should permit of acceptance for general military service. Chancroid and gonococcus infections were placed in Group C somewhat more commonly than in the case of syphilis, being so classified in about 12 per 1,000, or one-third of the normal assignment rate to Group C. Here again the rate of assignment to Group C is abnormally low, because most cases of these diseases were accepted for general military service.

3. *Curvature of the spine*.—This defect led in about 82 per cent of the cases to unqualified rejection. There were referred to Group C 39 men out of a thousand found with curvature of the spine. This rate of reference to Group C is close to the average rate. It is clear that a minor degree of curvature of the spine would not interfere with occupations similar to those of civil life.

4. *Arthritis*.—This disease, which led to rejection of 87 per cent of the cases, permitted classification into Group C in about 47 per 1,000 of the men found with arthritis. This is somewhat above the average of reference to Group C, and indicates that in the opinion of



the medical examiners a mild degree of arthritis which would interfere with general military service would nevertheless permit of occupations like those engaged in in civil life.

5. *Exophthalmic goiter*.—This disease, with the high rejection rate of 923 out of every thousand men found with it, was placed in Group C in 33 per 1,000 cases found, a rate slightly less than the average. Often when not progressive exophthalmic goiter is symptomatic of a condition with is incompatible with extreme excitement and distress, but it was judged that this condition was not incompatible with occupations like those in which a registrant was engaged in civil life.

6. *Various paralyses*.—These defects, including hemiplegia, paraplegia, monoplegia, and local paralyses, were placed in Group C in a proportion of cases which varied from 3 to 44 per 1,000. As the numbers are mostly small, the fluctuation in the assignment rate is not very significant. On the whole, the proportion assigned to Group C in the case of these minor paralyses is less than the average assignment to this group. Doubtless in many cases the paralyses were of a kind or degree as to incapacitate even for civil work.

7. *Mental deficiency*.—Of every thousand men found with this defect, only 7.5 were assigned to Group C, evidently with the idea that some degrees of mental deficiency were capable of work in labor battalions or other organizations involving simple mechanical labors.

8. *Psychoses*.—In the case of constitutional psychopathic states 41 per 1,000 of the cases were placed in Group C, being only slightly more than the average ratio of assignments to this group.

Of the cases of dementia precox and manic depressive psychoses discovered, practically none were placed in Group C.

9. *Defective vision* was one of the commonest defects found, over 90,000 cases being noted. Of these, about 318 per 1,000 were placed in Group C, a ratio of assignment which is eight and one-half times greater than the average rate. In fact, defective vision of the minor grades offers one of the best examples of a defect rate, which, although interfering with general military service, is nevertheless compatible with excellent service in civil life. Errors of refraction, like astigmatism, hyperopia, and myopia, are easily and effectively corrected, especially for purposes of office work.

10. *Trachoma*.—The distribution of these cases was chiefly either complete rejection (927 per 1,000) or acceptance (70 per 1,000). Only 3.7 per 1,000 were placed in Group C.

11. *Blindness in one eye* was qualified in Group C in 40 per 1,000, being about the average rate of assignment to this class.

12. *Otitis media*.—This common disease was regarded as cause of rejection in the vast majority of cases. However, there were 9.5 per 1,000 who were classified in Group C, evidently some of the minor cases of infection.

13. *Defective hearing*.—Of persons with this disease, 37 per 1,000 were placed in Group C, which is close to the average assignment to this group. This defect, also, is one which, while interfering in an important way with general military service, is nevertheless not incompatible with certain types of clerical or mechanical work.

14. *Hypertrophic tonsillitis*.—Of persons with this disease, 24 per 1,000 were assigned to Group C. The relatively low assignment is due to the circumstance that the great majority (935 per 1,000) were accepted for general military service.

15. *Valvular diseases of the heart.*—The diseases of this group were mostly causes of rejection. From 864 to 974 per 1,000 were actually rejected for any military service. The proportions accepted for limited military service varied from 7 to 54 per 1,000. This variation is largely due to the fact that some of the defects included under valvular diseases of the heart were relatively rare. In the case of mitral insufficiency, which was the commonest designation, 38.8 per 1,000 were assigned to Group C, which is close to the average of assignment to this group. Thus, the judgment of the examiners is indicated that mitral insufficiency is in many cases fairly compatible with work of the nature of many of the civil occupations. Of the separate diseases in this group, mitral stenosis was assigned to Group C in only 17 per 1,000 of the cases. Evidently this was regarded as, on the whole, a specially serious condition from the point of view of civil life.

16. *Hemorrhoids and varicose veins* were placed in Group C, each in the proportion of about 52 cases per 1,000 men found with the defect. This is nearly a 50 per cent greater ratio of assignment than the average. The rates of the cases were, in the cases of hemorrhoids, nearly equally distributed between unconditional rejection and unconditional acceptance. In the case of varicose veins, the ratio of acceptance was relatively small. Varicocele was placed in Group C in about 36 per 1,000 of the cases. This is close to the normal rate of assignment to this group. Evidently there appeared at examination a large number of cases of weak-walled veins of a grade which was regarded as not incompatible with civil occupations.

17. *Functional heart disorders.*—These were assigned to Group C in ratios varying from 40 to 326 per 1,000. Thus, tachycardia, which was found in over 12,000 cases, was regarded as not incompatible with civil occupation in about the normal proportions. Functional cardiac disorders, not otherwise classified, were, on the other hand, assigned to this group at the rate of 326 per 1,000 cases, being divided between Groups C and D in about the ratio of 1 to 2. As was quite proper, few of the marked cases of functional heart disorder were accepted for general military service, but the defect was not considered in one-fourth to one-third of the cases as preventing efficient work in ordinary civil occupations.

18. *Asthma.*—Most recruits found with this defect were rejected. About 11 per 1,000 were placed in Group C. This is less than one-third of the normal assignment to this group.

19. *Defective and deficient teeth* were placed in Group C in 173 per 1,000 cases found. Evidently only the more marked cases of defective and deficient teeth were noted, and of these the great majority were unconditionally rejected, the proportion being accepted for special service representing the intermediate grade of this defect.

20. *Hernia* was placed in Group C in 47 per 1,000 of the recorded cases. This is a little above the average of assignments to the group. Nearly one-third of all the cases were accepted unconditionally and two-thirds unconditionally rejected. In the case of enlarged inguinal rings, the rate of assignments to Group C is reduced to 29 per 1,000, since the great majority of cases of this defect was accepted without qualification.

21. *Hydrocele.*—This defect, which was accepted in about two-thirds of the cases and rejected in about one-third, was assigned to



group C in 37 per 1,000 of all cases, or about the normal rate of assignment.

22. *Malunion of fracture of upper extremity*.—A badly set arm fracture was considered compatible with civil occupations in 145 per 1,000 cases found with this defect, whereas a corresponding malformation of the leg was accepted for limited service in only 99 per 1,000 cases. These differences run parallel with the differences in unconditional acceptance of malformations of this type in the arm and leg. Evidently such malformations in the leg interfere more than those in the arm with usefulness both in general military and civil occupations. This is perhaps due to the fact that whereas efficient use of the legs demands a symmetrical functioning the arms are used unsymmetrically and a damage of one (especially the left) does not interfere with the nearly full functioning of the other.

23. *Shortening of lower extremity*.—This defect led to rejection in 873 per 1,000 cases. It was accepted for special or limited military service in 48.5 per 1,000 of the cases. Minor grades were evidently not regarded as incompatible with civil occupations.

24. *Loss of whole or part of the upper extremity* was accepted for special or limited military service in about 10 per 1,000 cases, whereas a corresponding loss of whole or part of the lower extremity was so accepted in only about 3 per 1,000 cases. The greater acceptance of loss of upper extremity over lower extremity again has to be explained on the same ground as the greater proportion of acceptance of defects of the upper extremity over the lower.

25. *Bony ankylosis of joint and fibrous ankylosis* were classified in group C, each in about 79 per 1,000 cases, being two and one-half times the ordinary rate of assignment to group C. Evidently this corresponds to grades of ankylosis intermediate between the third which were accepted for general military service, and the two-thirds that were unconditionally rejected.

26. *Hammer toe and hallux valgus* were accepted for special military service in about 53 per 1,000 cases, each found with the respective defects. These again represent the grades of this defect intermediate between the nearly four-fifths accepted and the one-fifth unconditionally rejected.

27. Of *flat foot*, about 30 per 1,000 were placed in group C. This is below the average of assignment to this group and undoubtedly was too small. It would have been better, as the high rate of discharge for disability for this defect shows, had a smaller proportion been accepted for general military service and more for clerical work. Of *pronated foot*, on the other hand, of which a much smaller proportion was accepted for general military service, 120 per 1,000 were placed in group C.

28. Of *deformities of the upper extremity*, other than those specified as being due to malunion of fracture, 35 per 1,000 were placed in group C, whereas only 20 per 1,000 of deformities of the lower extremity were so placed. Here again a larger proportion of deformities of the upper extremity were acceptable for special military service than of deformities of the lower extremity. There was a corresponding excess of unconditional rejections in the case of deformities of the lower extremity.

29. *Atrophy of muscles of the extremities* were classified in group C in 42 per 1,000 in the case of the upper extremity and 30 per 1,000



in the case of the lower extremity. This also again agrees with the general findings that defects of the upper extremity are less serious than those of the lower extremity for special or general military purposes.

30. *Underweight* was assigned to group C in 55 cases per 1,000, being about 50 per cent of the average of assignment to this group. Underheight was so assigned in 20 per 1,000 of the cases. It is rather remarkable that so small a proportion of short men were assigned to civil occupations in the Army, since a large proportion of underheight was due to the presence in our population of small races. It is rather remarkable and somewhat difficult to explain that the different standards of the physical examination were in agreement in requiring unconditional rejection for all military service of men with a height of less than 60 inches, without regard to race. The facts are that there were many south Italians, Greeks, Polish Jews, and other representatives of short races who are perfectly well formed and capable of effective work in civil occupations who have a height under the standard set.

31. *Cryptorchidism*.—This defect was classified in group C in about 36 per 1,000, or close to the average of assignment to this group. The remaining cases were nearly equally distributed between acceptance and unconditional rejection.

Among the minor defects and diseases found which were assigned to group C in an exceptionally high ratio, and in numbers sufficiently large to indicate that the result is not purely accidental, are the following:

32. *Obesity*.—There were 54 per 1,000 of recruits classified in this group who were considered too fat to fight but not to do civil work in the Army.

33. *Eyes—defects of*.—Of amblyopia there were 84 per 1,000 placed in group C. This term was apparently used frequently for defective vision. Color blindness was not frequently noted. There were 216 per 1,000 assigned to group C. Of the men found with cicatricial contracture, 124 per 1,000 were assigned to group C, and of painful cicatrices and abdominal scars each about 99 per 1,000. Relaxed ligaments of a joint were placed in group C in about 83 per 1,000 cases and contracture of muscle fascia, tendon, or sheath in about 88 per 1,000. Divided ligament of muscle, tendon, or sheath was placed in group C in about 88 per 1,000 of the cases.

Of all the defects and disorders, functional cardiac disorders, mentioned above, showed the largest proportion of assignment to group C. Among the minor defects classified in this group in exceptionally small proportions were diabetes mellitus, of which 98 per cent were rejected; anemia (1.9 per 1,000), 97 per cent rejected; tabes dorsalis (3.7 per 1,000), 99 per cent rejected; multiple sclerosis (3.8 per 1,000), 98 per cent rejected; chorea (1.7 per 1,000), 98 per cent rejected; muteness (3 per 1,000), 99 per cent rejected; deafness (2.1 per 1,000), 99 per cent rejected; various titles of mental alienation, of which nearly all were rejected; blindness in both eyes (0.6 per 1,000), 99.7 per cent were rejected; diseases of the urethra (1.4 per 1,000); the remainder was about equally distributed between acceptance and unconditional rejection. The reason for this low rate in a disease showing such variation in degree is a little difficult to explain.

## B. THE UTILIZATION OF GROUP C IN THE VARIOUS STATES.

We now pass to a consideration of the variation in the percentage of cases assigned to group C in the different States. For this purpose we must limit the discussion to the commoner diseases and defects. For the less common diseases and defects the numbers in some of the States are so small that the ratios are not significant.

1. *Pulmonary tuberculosis*.—The ratio of assignment of men with this disease to group C varied between 2.1 per 1,000 men examined, in the case of California, to none at all in a number of the other States. The reason why so large a proportion of men from California were placed in group C is partly because there were relatively many more cases of pulmonary tuberculosis found in men from California than from any other State, and, secondly, because in the examination by local boards of the second million men there was an unprecedentedly large number of persons with pulmonary tuberculosis accepted for special limited military service. No other State approached California in this respect, and the question arises whether special instructions had been given in that State to accept minor grades of pulmonary tuberculosis for such limited service. For the most part the ratio per 1,000 men examined who were accepted for special or limited military service in the different States runs around 0.10; that is, 1 per 10,000 men examined.

1a. *Venereal diseases*.—These were not very frequently referred to group C, we find the largest proportion of such reference being made in the State of Florida, where 5.5 per 1,000 men examined were placed in group C on account of venereal disease. In the States of Nevada, North Dakota, and Wyoming no persons were so referred. In Mississippi 1.9 per 1,000 were placed in group C and in North Carolina 1.4 per 1,000 were placed in group C. In New York the ratio is 0.33 per 1,000 and in Massachusetts 0.62 per 1,000. The high rate of reference in Florida to group C is clearly associated with the fact that that State shows the highest proportion of venereal disease among the men examined of any State.

2. *Curvature of the spine*.—This defect for the United States, as a whole, was assigned to group C in a frequency equal to the average assignment to group C of all defects which showed a varied ratio of assignment to this group in the different States. Thus, in Delaware 1.33 per 1,000 men examined were placed in group C on account of curvature of the spine. Other large ratios are 1.2 in the case of Utah, 0.83 in the case of Nevada, 0.82 in the case of Maine, and 0.63 in the case of Connecticut. In some cases at least these high ratios are due to the high ratio of occurrence of the defect in the respective States; in other cases to the idiosyncrasies of the examining boards.

3. *Simple goiter*.—This disease, which has the average proportion of assignment to Group C (38.8 per 1,000) cases, is relatively frequent in the Northwestern States. Of the men examined from Utah, 1.80 per 1,000 were assigned to Group C on account of simple goiter, 1.26 per 1,000 men from the State of Washington, 1.10 per 1,000 from Oregon, 0.63 from Idaho, 0.65 from Wisconsin, 0.55 from Wyoming, 0.59 from Michigan, and 0.55 from Illinois. The ratio of assignment to Group C in the different States agrees roughly with the frequency of the diseases in those States.



4. *Epilepsy*.—This disease was rarely placed in Group C, as was to have been expected. However, in the State of Delaware there were 0.27 per 1,000 men examined who were placed in this group. In none of the other States is the ratio above 0.11 per 1,000.

5. *Mental deficiency*.—Of this defect, which was rather rarely accepted in Group C, 1.24 per 1,000 were classified in that group from the State of Maryland, 0.99 per 1,000 from the State of Mississippi, and 0.88 per 1,000 from Virginia. For most of the States the percentage was under 0.5 per 1,000, or 5 per 10,000 men examined.

6. *Defective vision (cause not stated)*.—This is one of the favorite defects assigned to Group C. The ratio of cases so assigned differed strictly in the different States, partly because of the differences in the proportion of errors of refraction and other causes of defective vision found in these States. From New York State 10.45 per 1,000 men were classified in Group C. In Massachusetts 9.84 per 1,000 men. Other States with a high ratio classification in Group C are: New Hampshire, 7.88 per 1,000; Vermont, 6.61 per 1,000; Rhode Island, 6.59 per 1,000; Connecticut, 6.22 per 1,000; and Maine, 5.81 per 1,000. These are for the most part States with a high proportion of eye defects found.

7. *Blindness in one eye*.—This defect is referred to Group C in about the average proportion of all defects. The ratio of assignment to this group varies slightly in the different States. Thus the maximum ratio is found in the State of Oregon, 0.68 per 1,000 men, and the next largest in Colorado, 0.65 per 1,000. Other high ratios are in Utah and Vermont, 0.60; Washington, 0.59; Tennessee, 0.48; New York, 0.49; Massachusetts, 0.47; Kansas, 0.41; Pennsylvania, 0.40; California, 0.36; Illinois, 0.34.

8. *Otitis media*.—This disease was much more frequent in some States than in others, and in none was the ratio of men placed in Group C to the total of men examined very high. In Wyoming 0.36 per 1,000 men were accepted for limited service; in Connecticut, 0.34 per 1,000; and in Mississippi and Maryland, 0.31 per 1,000. In New York State, characterized by high proportion of otitis media, the ratio of men placed in Group C was only 0.15 per 1,000, showing a conservative judgment of the examiners of men from this State.

9. *Hypertrophic tonsillitis*.—Of this disease, which was most commonly accepted, 1,530 cases were placed in Group C. They were referred to that group in strictly varying proportions in the different States. Thus of the recruits from Vermont 3.40 per 1,000 men were placed in Group C on account of hypertrophic tonsillitis. From Maine and New York each 2 per 1,000; from Connecticut 1.86 per 1,000; and from Pennsylvania 1.37. These States are characterized by a rather high proportion of tonsillitis, and this seems to have been, in many cases, of a grade which did not warrant acceptance for general military service.

10. *Mitral insufficiency*.—As we have seen, mitral insufficiency was placed in Group C in about the same frequency as the average of all diseases. The ratio per 1,000 men examined placed in Group C from the different States varied considerably. Thus in the State of Washington (which had a very high defect rate in this disease) there were 3.60 per 1,000 men examined placed in Group C on account of mitral insufficiency. For Oregon (also examined at Camp Lewis)



the ratio was 3.04 per 1,000; for California 4.25; and for Idaho 2.51 per 1,000. All of these high ratios are for States tributary to Camp Lewis, and it is clear that not only were large numbers of men found with mitral insufficiency by the examiners at this camp, but also a large proportion of these men were accepted for special or limited military service instead of being unconditionally rejected. On the other hand, no men were placed in Group C on account of mitral insufficiency from the States of Delaware, Maine, and South Carolina.

11. *Defective and deficient teeth.*—This defect was found in a larger ratio in men from New England and other States of the Northeast than from other parts of the country. Correspondingly we find the ratio of assignment to Group C to be especially high in these States. Thus, the ratio from New Hampshire is 21.79 per 1,000 men; from Vermont, 18.42 per 1,000; Massachusetts, 15.76 per 1,000; Maine, 15.26 per 1,000; Rhode Island, 14.84 per 1,000; and Connecticut, 7.87 per 1,000. Of States outside of New England, New York shows a reference to Group C of 8.72 per 1,000 men examined, and Pennsylvania of 4.61. In the States farther west, Michigan shows a reference of 5.22 per 1,000. Low rates are found in some of the Southern and Western States. Thus, from Arkansas the ratio is 0.13 per 1,000; Texas, 0.20 per 1,000; Kansas, of 0.31 per 1,000; Alabama, of 0.46 per 1,000; Oklahoma, of 0.49 per 1,000; South Carolina, of 0.64 per 1,000; Colorado, of 0.78 per 1,000; and Louisiana, of 0.86 per 1,000. The exceptionally low rate of reference to Group C from the States of Arkansas, Louisiana, and Texas is probably in part due to the ideals of the examiners at Camps Pike and Travis.

12. *Hernia.*—Of the 2,709 cases of hernia referred to Group C, the different States sent very different quotas. The largest proportion of assignment to Group C was from the State of New Hampshire (3.86 per 1,000), and this despite the fact that the total amount of hernia found in recruits from this State was relatively small. Apparently there was a large number of recruits with an intermediate grade of hernia warranting neither rejection nor unqualified acceptance. Vermont resembled New Hampshire in respect to the ratio (3.60) of men assigned to Group C, though the total amount of hernia found in Vermont is relatively greater than in New Hampshire. Other relatively high proportions of men classified in Group C for hernia were found in California (2.60 per 1,000), Pennsylvania (2.57), Oregon (2.45), the State with the largest ratio of total hernia and total enlarged inguinal rings. Relatively few cases of hernia were assigned to Group C from South Carolina (0.29), which has an intermediate amount of total hernia; from North Dakota (0.39), which also has an intermediate amount of hernia and enlarged inguinal rings; and from Georgia (0.52), which has a relatively small amount of enlargement of inguinal rings, but more than the average of hernia. The fluctuations, therefore, in the assignment of cases of hernia to Group C depended somewhat upon the ideals of the examiners at the various camps, somewhat upon the general factors that make for hernia in the population.

13. *Ankylosis, bony and fibrous of joint.*—There were 1,462 cases with these defects assigned to Group C. The ratio per 1,000 men ex-

amined who were assigned to this group from the different States varied slightly. The largest proportion is from the State of Delaware, with a total of 2.39 per 1,000, and this despite the fact that Delaware occupies a strictly intermediate position in the total amount of ankylosis found among its recruits. This suggests that there was an exceptionally large proportion of men having an intermediate amount of ankylosis from this State. Since the State of New Jersey, which was examined at the same camp with Delaware (Camp Dix), had a ratio of men assigned to Group C only 0.75 per 1,000 men examined, we may conclude that the peculiarity of Delaware is not due solely to the idiosyncrasies of the examiners at that camp. Other high rates of assignment to Group C are found in Florida, 1.55 per 1,000; Nevada, 1.65 per 1,000; Mississippi, 1.45 per 1,000; and Wyoming, 1.28 per 1,000. Nevada and Wyoming were examined at Camp Lewis, but the other States at different camps, so it seems probable that men from these States were characterized by an intermediate grade of ankylosis, as all of them, excepting Mississippi, occupied a somewhat intermediate position in the total of ankylosis found in recruits from all States.

14. *Pes planus*.—This, the commonest defect found among men of military age, was referred to Group C in 9,036 cases. The highest ratio of assignment to Group C from any State comes from Washington, 18.17 per 1,000. Other high rates are California, 17.52; Oregon, 15.62; and Utah, 15.27. The men from these States were all examined at Camp Lewis, and it seems probable that the high reference to Group C is largely due to the idiosyncrasies in the examiners at Camp Lewis. However, most of these States stand toward the top of the list in the total proportion of men found with flat foot and there is other evidence of the presence of a large amount of flat foot of various grades in the Northwest. The smallest amount of reference to Group C for flat foot is found in some of the Southern States, such as Georgia, 0.74 per 1,000; Texas, 0.82 per 1,000; and Oklahoma, 0.99 per 1,000. In each the total amount of flat foot found is rather small. The variations among the States in reference to Group C for flat foot, therefore, run approximately parallel with the total amount of flat foot found in each State.

#### F. THE SECTIONS AND DISEASES OR DEFECTS FOUND IN THEM.

#### I. DETAILED DESCRIPTION OF THE SECTIONS WITH THE CHARACTERISTICS OF THEIR POPULATION.

In view of the great diversity in the racial composition of different sections of the United States, it was early decided to gather the statistics of diseases and defects found in drafted men into 155 sections. This number was chosen as a compromise between that of the 48 States, often with highly mixed populations, on the one hand, and the 4,557 local boards on the other. Though it would have been desirable to have secured the statistics for each local board separately, yet this was not possible on account of the great expense of the undertaking.



A list of the sections selected, their designations, principal characteristics, total population, density per square mile, a list of cities of 25,000 included in each, and percentage of urban population are given in Table 97. This table also gives the racial composition of each section distributed under the heads of native whites, distinguishing those born of native parents and those born of parents one or both of whom were foreign. The table also gives the proportion of foreign-born whites, of Negroes, and Indians, Chinese and Japanese consolidated. Taking the foreign-born whites and those of whom one or both parents were foreign born, an attempt is made to indicate the proportion of each European stock from which the population came. This has been done for the Germans, Irish, English, Austrian-Russian (largely Jews), Scandinavians, Italians, Canadian French, Canadian (other), Hungarians, Mexicans, and Scotch. There is also given the proportion of certain other nationalities that occur sparsely, such as Greeks, Dutch, French, Portuguese, Swiss, and Spanish. The counties included in each section are enumerated in Table 98.

The characteristics of the different sections are not always sharply marked off. In few cases, the sections were formed in order to preserve the relative homogeneity of the population of the remaining sections of the State.

In order that the reader may be precisely informed concerning the geographical limits of each of these sections, the map, figure 1, is given which shows all the counties of the United States and, by figures, the division of each State into its sections. In the case of a section made up of two discontinuous areas, the two portions are designated by the letters "a" and "b," following the number of the section. It will be noted that in a few cases the section comprises only a large city. This is true in the case of Boston, New York, Philadelphia, Denver, Buffalo, Cincinnati, Detroit, Chicago, Milwaukee, the "Twin Cities," St. Louis, Denver, San Francisco, Los Angeles, and New Orleans.

The racial composition of certain parts of the United States, each comprising a number of States, is shown in the map, figure 2. In each of the main divisions of the country a circle is drawn. This is divided into sectors in proportion to the number of native whites, Negroes, the other colored races, and principal nationalities of Europe represented. The chart shows at a glance that the Southern States are characterized by an exceptionally large proportion of native whites and in each section over 25 per cent Negroes. Of the Northern tier of States, the New England section is characterized by Canadians and Irish among its foreign population. The Middle States are characterized by large numbers of Russian-Austrians, Germans, Irish, and Italians; the Central States by the large numbers of Germans and Italians; the Northern Great Plains by the Germans and Scandinavians, the Great Basin by its blend of many peoples and the Pacific coast by Orientals, Germans, Irish, Canadians, and Scandinavians in nearly equal proportions.

Finally, certain of the sections having similar characteristics have been consolidated in the study of the diseases and defects shown by



their drafted men. These groups are shown in Table XXXII. As can be seen from this table, the names of the groups are:

Agriculture: Native white, North, 73 per cent plus.	Indian, sparsely settled.
Agriculture: Foreign and native white.	Mexican, sparsely settled.
Agriculture: Native white, South.	Native white, Scotch origin.
Agriculture: Negro, 45 per cent plus.	Russian, 10 per cent plus.
Eastern manufacturing.	Scandinavian, 10 per cent.
Commuters.	Finns, 10 per cent.
Mining.	French Canadians, 10 per cent plus.
Sparsely settled, 3 or less per square mile.	Germans and Scandinavians, each 10 per cent plus.
Desert.	Germans and Austrians, 20 per cent plus.
Maritime.	Germans and Austrians, 15 per cent plus.
Mountain.	
Mountain whites.	

The statistics relating to character and composition of these 22 combined sections are given in Tables 97 and 98.

TABLE 97.—*Characteristics and composition of the popu-*

State No.	Designation of section.	Characteristics.	Total population.	Density per square mile.	Cities of 25,000 or over.	Per cent urban.
1	Alabama 1.....	Mining and manufacturing area.	760,740	49.0	Birmingham.....	26.9
	Alabama 2.....	Large Negro population.....	563,441	44.0	Montgomery.....	14.8
	Alabama 3.....	Large native white population.....	577,627	35.0	.....	5.3
	Alabama 4.....	Large Negro population.....	122,817	31.0	.....	.....
	Alabama 5.....	Urban and suburban area.....	95,303	41.0	Mobile.....	54.0
2	Arizona 1.....	Large Indian population, sparsely settled.	57,953	.9	.....	12.2
	Arizona 2.....	Chiefly white population.....	146,371	2.9	.....	38.4
3	Arkansas 1.....	Negro, Mississippi bottoms.....	641,940	36.0	Little Rock.....	17.6
	Arkansas 2.....	Large native white population, hill country.	212,005	19.0	.....	3.4
	Arkansas 3.....	Large native white population.....	720,504	30.0	.....	11.3
4	California 1.....	Chiefly agricultural area.....	1,433,895	16.1	{Oakland..... 1 Sacramento.....}	46.9
	California 2.....	Mining area.....	93,226	4.4	.....	10.5
	California 3.....	Sparsely populated.....	114,318	2.5	.....	43.9
	California 4.....	Urban area.....	319,198	.....	Los Angeles.....	100.0
	California 5.....	do.....	416,912	9,689.0	San Francisco.....	100.0
5	Colorado 1.....	Large native white population.....	108,622	3.4	.....	18.1
	Colorado 2.....	Russian population.....	89,813	8.0	.....	28.8
	Colorado 3.....	English population.....	78,716	10.0	.....	29.4
	Colorado 4.....	Prevaillingly agricultural.....	139,574	5.0	Colorado Springs.....	33.5
	Colorado 5.....	Urban population.....	213,381	3,679.0	Denver.....	100.0
	Colorado 6.....	Austrian and Italian population.....	159,918	8.0	Pueblo.....	46.5
6	Connecticut 1.....	{Prevailingly agricultural and near metropolitan.	400,100	114.7	Norwich.....	78.2
	Connecticut 2.....	Manufacturing area.....	714,656	536.5	{New Haven.. 2 Bridgeport.....}	96.1
7	Delaware.....	State undivided.....	202,322	103.0	Wilmington.....	48.0
8	District of Columbia.	District undivided.....	331,069	5,518.0	Washington.....	100.0
9	Florida 1.....	More white and maritime.....	248,836	18.7	Jacksonville.....	35.0
	Florida 2.....	More Negro and rural population.....	220,302	21.0	.....	14.1
	Florida 3.....	{Cuban, Spanish, West Indian population.	21,563	19.0	.....	92.5
	Florida 4.....	Peninsular.....	261,918	8.7	Tampa.....	30.9
10	Georgia 1.....	Mixed population, native white predominating.	1,334,222	43.0	Atlanta.....	19.4
	Georgia 2.....	Large Negro population.....	1,274,899	45.0	{Savannah.... 3 Augusta.....}	21.9
11	Idaho.....	State undivided.....	325,504	3.9	.....	21.5
12	Illinois 1.....	Densely populated.....	434,972	192.5	{Joliet..... 4 Aurora.....}	63.5
	Illinois 2.....	{Mixed native and foreign popu- lation.	753,575	68.2	{Peoria..... 5 Rockford.....}	43.9
	Illinois 3.....	Agricultural area, native.....	995,129	51.0	{Springfield... 6 Decatur.....}	24.3
	Illinois 4.....	Largely German population.....	344,621	80.0	East St. Louis..	45.3
	Illinois 5.....	Urban area.....	2,185,283	11,812.0	Chicago.....	100.0
	Illinois 6.....	Negro population (Egypt).....	52,591	80.0	.....	41.9
	Illinois 7.....	Agricultural area.....	805,587	49.0	Bloomington.....	31.1
	Illinois 8.....	Agriculture and manufacturing area.	266,833	45.3	.....	28.2
13	Indiana 1.....	Manufacturing.....	282,521	117.0	South Bend.....	69.3
	Indiana 2.....	Agricultural, considerable Ger- man.	123,679	37.0	.....	18.6
	Indiana 3.....	Agricultural area, native stock..	2,289,676	76.0	{Indianapolis.. 7 Evansville.....}	40.4
14	Iowa 1.....	{Foreign white, German and Scandinavian.	1,442,410	38.0	{Sioux City.... 8 Davenport.....}	29.6

¹ Indian.

² Chinese.

³ Japanese.

⁴ Russian.

lation of the various sections of the United States.

Native white.			Negro.	Indian, Chinese, Japanese.	German.	Irish.	English.	Austrian and Russian.	Scandinavian.	Italian.	Canadian, French.	Canadian, other.	Hungarian.	Mexican.	Scotch.
Native par- centage.	Foreign par- centage.	Foreign-born white.													
71.5	2.2	1.1	25.6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
28.5	.6	.3	70.6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
67.6	.8	.6	31.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
26.9	.2	.1	72.8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
46.3	7.5	3.2	42.8	.....	1.7	1.3	.....	.....	.....	.....	.....	.....	.....	.....	.....
34.2	13.1	15.4	.6	36.6	1.5	.....	2.2	.....	.....	.....	.....	.....	.....	8.4	.....
42.8	23.6	25.9	1.1	6.6	2.2	1.9	2.5	.....	.....	1.2	.....	.....	.....	7.8	.....
41.7	2.0	.9	55.3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
96.9	1.4	.5	.7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
83.9	2.9	1.3	12.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
49.6	25.2	20.0	.8	1.7 21.5 22.1 12.6 21.6 31.0 3.6 2.6 31.7	5.7	3.7	2.8	.....	2.6	3.8	.....	2.2	.....	.....	.....
47.2	27.3	19.9	.2	1.3 2.5 1.1 1.0 3.5 1.1 1.0 4.8 5.3	4.3	4.0	6.0	{ 4.1 2.0 }	1.5	6.9	.....	1.4	.....	.....	.....
57.6	17.5	17.8	1.1	2.6 3.1 3.7	3.4	1.7	2.5	.....	.....	.....	.....	2.9	.....	6.9	.....
53.2	23.4	19.0	2.4	2.6 1.3 2.5 1.1 1.0 3.5 1.1 1.0 4.8 5.3	6.9	2.8	3.5	{ 2.2 1.5 1.6 1.0 1.2 1.8 1.9 1.2 1.7	1.7	1.9	.....	2.9	.....	1.7	.....
27.7	36.9	31.4	.4	2.5 1.1 1.0 3.5 1.6 1.2 1.8 6.1 1.9 1.8	11.7	13.1	3.5	{ 1.5 1.6 1.0 1.2 1.8 3.3 4.8 2.0 1.1	4.4	6.4	.....	1.8	.....	.....	1.3
73.9	15.7	8.6	.4	1.0 3.5 1.6 1.2 1.8 6.1 1.9 1.2 1.7	3.5	1.6	1.9	{ 1.0 1.2 1.8 3.3 4.8 2.0 1.1	1.2	1.2	.....	1.3	.....	.....	.....
64.3	19.8	14.5	.2	3.6 3.1 3.7	3.4	1.7	2.5	.....	.....	.....	.....	2.9	.....	6.9	.....
54.3	27.1	17.6	.7	2.6 1.3 2.5 1.1 1.0 3.5 1.1 1.0 4.8 5.3	6.9	2.8	3.5	{ 2.2 1.5 1.6 1.0 1.2 1.8 1.9 1.2 1.7	1.7	1.9	.....	2.9	.....	1.7	.....
69.5	18.2	10.7	1.4	2.6 1.3 2.5 1.1 1.0 3.5 1.1 1.0 4.8 5.3	6.9	2.8	3.5	{ 2.2 1.5 1.6 1.0 1.2 1.8 1.9 1.2 1.7	1.7	1.9	.....	2.9	.....	1.7	.....
50.1	28.7	18.2	2.5	2.5 1.1 1.0 3.5 1.6 1.2 1.8 6.1 1.9 1.8	11.7	13.1	3.5	{ 1.5 1.6 1.0 1.2 1.8 3.3 4.8 2.0 1.1	4.4	6.4	.....	1.8	.....	.....	1.3
52.4	22.9	22.4	1.9	1.0 3.5 1.6 1.2 1.8 6.1 1.9 1.2 1.7	3.5	1.6	1.9	{ 1.0 1.2 1.8 3.3 4.8 2.0 1.1	1.2	1.2	.....	1.3	.....	.....	.....
44.3	29.5	24.9	1.2	3.6 3.1 3.7	3.4	1.7	2.5	.....	.....	.....	.....	2.9	.....	6.9	.....
30.6	35.9	32.0	1.4	2.6 1.3 2.5 1.1 1.0 3.5 1.1 1.0 4.8 5.3	6.9	2.8	3.5	{ 2.2 1.5 1.6 1.0 1.2 1.8 1.9 1.2 1.7	1.7	1.9	.....	2.9	.....	1.7	.....
63.2	12.8	8.6	15.4	2.5 1.1 1.0 3.5 1.6 1.2 1.8 6.1 1.9 1.8	11.7	13.1	3.5	{ 1.5 1.6 1.0 1.2 1.8 3.3 4.8 2.0 1.1	4.4	6.4	.....	1.8	.....	.....	1.3
50.4	13.6	7.4	28.5	1.0 3.5 1.6 1.2 1.8 6.1 1.9 1.2 1.7	3.5	1.6	1.9	{ 1.0 1.2 1.8 3.3 4.8 2.0 1.1	1.2	1.2	.....	1.3	.....	.....	.....
54.2	3.3	2.0	40.5	3.6 3.1 3.7	3.4	1.7	2.5	.....	.....	.....	.....	2.9	.....	6.9	.....
40.5	1.0	.9	57.8	2.6 1.3 2.5 1.1 1.0 3.5 1.1 1.0 4.8 5.3	6.9	2.8	3.5	{ 2.2 1.5 1.6 1.0 1.2 1.8 1.9 1.2 1.7	1.7	1.9	.....	2.9	.....	1.7	.....
16.8	31.6	24.3	27.1	2.5 1.1 1.0 3.5 1.6 1.2 1.8 6.1 1.9 1.8	11.7	13.1	3.5	{ 1.5 1.6 1.0 1.2 1.8 3.3 4.8 2.0 1.1	4.4	6.4	.....	1.8	.....	.....	1.3
55.9	7.1	8.4	28.5	1.0 3.5 1.6 1.2 1.8 6.1 1.9 1.2 1.7	3.5	1.6	1.9	{ 1.0 1.2 1.8 3.3 4.8 2.0 1.1	1.2	1.2	.....	1.3	.....	.....	.....
68.6	.9	.6	29.9	3.6 3.1 3.7	3.4	1.7	2.5	.....	.....	.....	.....	2.9	.....	6.9	.....
37.3	1.1	.6	61.0	2.6 1.3 2.5 1.1 1.0 3.5 1.1 1.0 4.8 5.3	6.9	2.8	3.5	{ 2.2 1.5 1.6 1.0 1.2 1.8 1.9 1.2 1.7	1.7	1.9	.....	2.9	.....	1.7	.....
62.5	23.1	12.4	.2	2.5 1.1 1.0 3.5 1.6 1.2 1.8 6.1 1.9 1.8	11.7	13.1	3.5	{ 1.5 1.6 1.0 1.2 1.8 3.3 4.8 2.0 1.1	4.4	6.4	.....	1.8	.....	.....	1.3
34.6	38.2	23.9	1.0	1.0 3.5 1.6 1.2 1.8 6.1 1.9 1.2 1.7	3.5	1.6	1.9	{ 1.0 1.2 1.8 3.3 4.8 2.0 1.1	1.2	1.2	.....	1.3	.....	.....	.....
52.3	29.8	16.9	1.0	3.6 3.1 3.7	3.4	1.7	2.5	.....	.....	.....	.....	2.9	.....	6.9	.....
83.2	10.8	4.4	1.6	2.6 1.3 2.5 1.1 1.0 3.5 1.1 1.0 4.8 5.3	6.9	2.8	3.5	{ 2.2 1.5 1.6 1.0 1.2 1.8 1.9 1.2 1.7	1.7	1.9	.....	2.9	.....	1.7	.....
52.9	29.6	13.5	3.8	2.5 1.1 1.0 3.5 1.6 1.2 1.8 6.1 1.9 1.8	11.7	13.1	3.5	{ 1.5 1.6 1.0 1.2 1.8 3.3 4.8 2.0 1.1	4.4	6.4	.....	1.8	.....	.....	1.3
20.4	41.8	35.8	2.0	1.0 3.5 1.6 1.2 1.8 6.1 1.9 1.2 1.7	3.5	1.6	1.9	{ 1.0 1.2 1.8 3.3 4.8 2.0 1.1	1.2	1.2	.....	1.3	.....	.....	.....
60.4	7.4	2.1	30.5	3.6 3.1 3.7	3.4	1.7	2.5	.....	.....	.....	.....	2.9	.....	6.9	.....
71.0	20.2	8.2	1.0	2.6 1.3 2.5 1.1 1.0 3.5 1.1 1.0 4.8 5.3	6.9	2.8	3.5	{ 2.2 1.5 1.6 1.0 1.2 1.8 1.9 1.2 1.7	1.7	1.9	.....	2.9	.....	1.7	.....
54.1	31.5	14.2	.2	2.5 1.1 1.0 3.5 1.6 1.2 1.8 6.1 1.9 1.8	11.7	13.1	3.5	{ 1.5 1.6 1.0 1.2 1.8 3.3 4.8 2.0 1.1	4.4	6.4	.....	1.8	.....	.....	1.3
50.6	27.0	21.8	.6	1.0 3.5 1.6 1.2 1.8 6.1 1.9 1.2 1.7	3.5	1.6	1.9	{ 1.0 1.2 1.8 3.3 4.8 2.0 1.1	1.2	1.2	.....	1.3	.....	.....	.....
76.2	16.8	6.4	.4	3.6 3.1 3.7	3.4	1.7	2.5	.....	.....	.....	.....	2.9	.....	6.9	.....
82.5	11.0	3.9	2.5	2.6 1.3 2.5 1.1 1.0 3.5 1.1 1.0 4.8 5.3	6.9	2.8	3.5	{ 2.2 1.5 1.6 1.0 1.2 1.8 1.9 1.2 1.7	1.7	1.9	.....	2.9	.....	1.7	.....
50.7	34.2	14.8	.2	2.5 1.1 1.0 3.5 1.6 1.2 1.8 6.1 1.9 1.8	11.7	13.1	3.5	{ 1.5 1.6 1.0 1.2 1.8 3.3 4.8 2.0 1.1	4.4	6.4	.....	1.8	.....	.....	1.3

\*Austrian.

\*Cuban.

\*West Indian.



TABLE 94.—*Characteristics and composition of the population*

State No.	Designation of section.	Characteristics.	Total population.	Density per square mile. <sup>e</sup>	Cities of 25,000 or over.	Per cent urban.
14	Iowa 2.....	Native White.....	782,361	44.0	Des Moines.....	32.3
15	Kansas 1.....	Russian population.....	198,998	12.0		16.3
	Kansas 2.....	Native and German population.....	1,491,951	23.0	{Kansas City...9 Wichita.....}	{39.9 4.5
16	Kentucky 1.....	Mountainous area, native white.....	569,797	44.0		
	Kentucky 2.....	Agricultural area.....	1,720,108	63.0	{Louisville...10 Covington.....}	{39.8 13.3
17	Louisiana 1.....	Mississippi bottoms and upland, large Negro population.....	599,548	36.8	Shreveport.....	
	Louisiana 2.....	Urban area.....	339,075	1,695.0	New Orleans.....	100.0
	Louisiana 3.....	Rural, chiefly white population.....	717,765	24.8		10.8
18	Maine 1.....	English (Canadian).....	222,741	13.0		41.2
	Maine 2.....	Native white stock, maritime.....	124,729	37.0		28.7
	Maine 3.....	French Canadian population.....	394,901	37.0	{Portland..... Lewiston.....}	{64.2 82.0
19	Maryland 1.....	Urban area.....	680,834	1,001.0	Baltimore.....	
	Maryland 2.....	Peninsular area.....	176,412	65.0		12.7
	Maryland 3.....	Large white population.....	400,354	77.0		19.3
	Maryland 4.....	Large Negro population.....	43,741	41.0		
20	Massachusetts 1.....	Mountainous area.....	148,850	89.0	Pittsfield.....	67.3
	Massachusetts 2.....	Manufacturing center.....	2,306,884	454.0	{Worcester...11 Fall River.....}	{93.3 73.7
	Massachusetts 3.....	Peninsular region.....	179,345	144.0	Brockton.....	
	Massachusetts 4.....	Urban area.....	731,388	14,341.0	{Boston..... Chelsea.....}	{100.0 40.3
21	Michigan 1.....	Finnish population.....	206,943	21.0		
	Michigan 2.....	{Prevaillingly native white popu- lation.....}	1,158,767	34.0	{Grand Rapids.12 Kalamazoo.....}	{33.6 33.6
	Michigan 3.....	Foreign population.....	613,048	65.9	{Bay..... Saginaw.....}	{100.0 27.2
	Michigan 4.....	Urban area.....	465,766		Detroit.....	
	Michigan 5.....	Dutch and other foreign popu- lation.....	259,078	65.6		
22	Minnesota 1.....	Scandinavian population.....	558,953	12.0		10.6
	Minnesota 2.....	German and Scandinavian population.....	752,212	31.0		18.7
	Minnesota 3.....	Scandinavians and Finns.....	207,388	15.0	Duluth.....	61.7
	Minnesota 4.....	Urban area, "Twin Cities".....	557,155	766.0	{Minneapolis... St. Paul.....}	{93.8 10.7
23	Mississippi 1.....	Rural area, large Negro popu- lation.....	1,029,399	45.0		
	Mississippi 2.....	Rural area, large native white population.....	714,715	32.0		12.7
24	Missouri 1.....	Native white, agricultural.....	1,936,845	41.0	{Kansas City...13 St. Joseph.....}	{30.0 24.2
	Missouri 2.....	Mississippi bottoms, consider- able Negro population.....	510,181	38.0		
	Missouri 3.....	Native white, Ozark region.....	159,280	24.0		4.4
	Missouri 4.....	Urban area.....	687,029	11,263.0	St. Louis.....	100.0
25	Montana 1.....	Mining area, foreign population.....	225,098	5.6	Butte.....	49.6
	Montana 2.....	Sparsely settled, mountainous area.....	150,955	1.4		14.4
26	Nebraska 1.....	German and Irish, foreign stocks.....	776,717	13.0	{Omaha.....14 Lincoln.....}	{32.6 13.9
	Nebraska 2.....	{German, Austrian, and Russian stocks.....}	413,497	23.0		
27	Nevada 1.....	{State undivided, sparse popu- lation.....}	81,875	.7		16.3
28	New Hampshire 1.....	Mountainous area.....	88,721	19.0		35.5
	New Hampshire 2.....	Manufacturing area.....	341,851	75.0	{Manchester..... Nashua.....}	{65.4 89.6
29	New Jersey 1.....	Densely populated.....	1,514,588	2,145.0	Newark.....	
	New Jersey 2.....	Plains section, rural.....	733,624	177.6	{Jersey City...15 Trenton.....16 Camden.....}	{56.0 48.1
	New Jersey 3.....	{Mountainous area plus Atlantic County.....}	288,955	107.9	Atlantic City....	

<sup>1</sup> Austrian.<sup>2</sup> Russian.<sup>3</sup> Japanese.

of the various sections of the United States—Continued.

Native white.		Foreign-born white.	Negro.	Indian, Chinese, Japanese.	German.	Irish.	English.	Austrian and Russian.	Scandinavian.	Italian.	Canadian, French.	Canadian, other.	Hungarian.	Mexican.	Scotch.
Native par-entage.	Foreign par-entage.														
73.1	17.7	7.6	1.4	.....	4.9	2.1	1.6	.....	2.9	.....	.....	.....	.....	.....	.....
60.3	25.7	12.7	1.3	.....	6.1	.....	1.0	{1.8 13.1}	3.3	.....	.....	.....	.....	.....	.....
72.9	16.1	7.4	3.4	3.2	5.4	1.5	1.3	1.2	1.5	.....	.....	.....	.....	.....	.....
96.4	.7	.3	2.5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
76.4	6.9	2.2	14.4	.....	3.8	1.2	.....	.....	.....	.....	.....	.....	.....	.....	.....
31.8	3.1	2.0	63.0	.....	.....	.....	.....	.....	.....	2.2	.....	.....	.....	.....	.....
43.5	21.9	8.2	26.3	.....	6.5	3.1	.....	.....	.....	4.8	.....	.....	.....	.....	.....
61.0	2.7	1.7	34.4	.....	.....	.....	.....	.....	.....	1.3	.....	.....	.....	.....	.....
59.3	23.9	16.3	.2	.....	.....	1.9	.....	.....	1.0	.....	5.0	15.3	.....	.....	.....
86.1	7.8	5.8	.2	.....	.....	1.2	.....	.....	.....	.....	.9	2.9	.....	.....	.....
64.7	18.2	16.9	.2	.....	.....	3.5	1.6	1.3	.....	.....	12.5	5.1	.....	.....	.....
49.6	23.1	12.9	14.3	.....	13.3	3.4	.....	{1.7 6.4}	.....	1.1	.....	.....	.....	.....	.....
65.6	1.7	1.1	31.6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
73.4	7.9	3.4	14.8	.....	2.7	1.1	.....	.....	.....	.....	.....	.....	.....	.....	.....
50.0	1.3	.8	47.8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
46.7	30.7	21.7	.8	.....	4.1	10.4	2.6	{3.4 23.3}	.....	3.2	7.6	1.4	.....	.....	1.3
33.3	34.7	31.2	.8	.....	1.6	14.9	4.7	{1.9 3.8}	2.0	2.8	9.7	6.1	.....	.....	1.4
51.6	25.2	20.9	2.0	.....	1.0	9.6	2.3	3.4	3.1	3.3	2.7	5.0	.....	.....	.....
23.9	38.2	35.8	1.9	.....	2.7	22.0	2.9	10.2	1.5	7.1	.....	9.7	.....	.....	1.1
11.6	48.1	39.8	.1	4.3	5.2	2.8	8.5	{5.5 2.4}	23.1	4.4	6.6	3.2	1.1	.....	.....
55.6	29.4	14.5	.4	4.4	7.2	1.5	2.1	.....	2.5	.....	2.1	6.9	.....	.....	.....
42.9	37.5	19.0	.5	.....	16.3	2.1	2.5	1.5	.....	.....	1.8	10.7	.....	.....	.....
24.7	40.4	33.6	1.2	.....	24.5	3.1	2.8	{4.3 5.6}	.....	1.7	1.4	10.1	1.5	.....	.....
51.9	31.3	16.0	.6	4.1	8.7	1.4	1.6	1.2	2.4	.....	.....	2.5	.....	.....	.....
23.3	49.0	26.2	.....	1.2	10.3	1.3	.....	1.4	37.4	.....	1.3	2.1	.....	.....	.....
31.9	47.8	20.1	.....	.....	22.3	2.6	.....	2.9	16.8	.....	.....	1.1	.....	.....	.....
15.7	38.3	44.9	.8	.....	5.5	1.8	1.9	{8.6 22.7}	31.1	.....	2.9	5.4	.....	.....	.....
30.9	40.8	27.2	1.0	.....	12.2	4.2	1.5	{3.3 22.7}	22.0	.....	1.2	2.4	.....	.....	.....
27.3	.9	.5	71.2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
64.5	.3	.6	33.4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
81.4	10.9	4.4	3.2	.....	4.7	1.2	.....	.....	.....	.....	.....	.....	.....	.....	.....
76.6	10.4	3.1	9.9	.....	5.8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
94.4	3.9	1.4	.3	.....	1.5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
39.3	35.9	18.3	6.4	.....	20.0	6.0	1.3	{2.5 23.5}	.....	1.6	.....	.....	1.4	.....	.....
37.5	31.4	28.5	.6	4.9	5.5	8.1	5.0	4.5	7.7	2.4	.....	4.1	.....	.....	1.2
51.5	23.9	18.1	.3	6.1	5.2	2.6	2.2	1.5	5.9	1.6	.....	3.7	.....	.....	1.5
54.3	29.3	15.0	.9	4.5	12.2	2.5	1.4	{3.9 21.9}	6.4	.....	.....	.....	.....	.....	.....
52.9	39.5	14.3	.1	4.1	13.5	.....	1.2	{5.5 22.2}	6.5	.....	.....	.....	.....	.....	.....
33.1	25.6	22.0	.6	{8.4 1.1 1.1}	4.9	5.4	4.0	1.2	2.6	4.6	.....	2.5	.....	.....	.....
60.8	21.6	17.4	.....	.....	.....	1.6	1.0	.....	.....	12.9	9.6	.....	.....	.....	.....
51.6	24.5	23.7	.1	.....	1.0	6.9	1.9	1.5	.....	17.3	4.7	.....	.....	.....	.....
28.7	37.5	31.5	2.2	.....	14.0	10.0	3.5	{4.4 7.1}	.....	8.9	.....	.....	2.2	.....	1.4
54.7	21.7	18.1	5.6	.....	6.6	5.6	2.7	{2.1 4.4}	.....	4.4	.....	.....	3.4	.....	.....
60.4	17.6	16.7	5.2	.....	4.4	4.9	2.4	{1.4 22.0}	.....	6.7	.....	.....	3.2	.....	.....

\* Indian.

\* Chinese.

TABLE 94.—*Characteristics and composition of the population*

State No.	Designation of section.	Characteristics.	Total population.	Density per square mile.	Cities of 25,000 or over.	Per cent urban.
30	New Mexico 1.....	Indian population.....	59,970	2.0	.....	.....
	New Mexico 2.....	Native white population.....	212,657	3.0	.....	18.5
	New Mexico 3.....	Noteworthy Mexican element.....	54,614	1.7	.....	13.1
31	New York 1.....	Suburban territory.....	565,449	210.0	Yonkers.....17 (Mount Vernon.....)	57.9
	New York 2.....	Urban area, densely populated.....	4,766,883	16,667.0	New York City.....	100.0
	New York 3.....	Eastern manufacturing region.....	658,978	85.0	Albany..... (Schenectady.....)	56.3
	New York 4.....	Western manufacturing region.....	1,361,257	141.0	Rochester.....18 (Syracuse.....)	61.7
	New York 5.....	Mountainous Catskill region.....	284,857	101.0	Newburgh..... (Kingston.....)	39.9
	New York 6.....	Urban area.....	423,715	.....	Buffalo.....	100.0
	New York 7.....	Agricultural and dairying.....	774,620	62.0	(Binghamton.....)19 (Elmira.....)	37.7
32	New York 8.....	Mountainous Adirondack area.....	277,855	25.0	.....	26.5
	North Carolina 1.....	Sparsely populated mountainous area.....	375,903	38.0	.....	7.4
	North Carolina 2.....	Intermediate.....	657,162	62.0	Charlotte.....	21.7
	North Carolina 3.....	Native white of Scotch origin.....	296,425	40.0	.....	3.8
	North Carolina 4.....	Large Negro population.....	651,669	51.0	.....	16.1
	North Carolina 5.....	Island and peninsular area.....	55,975	19.0	.....	0.0
	North Carolina 6.....	Remainder of State.....	133,408	29.0	Wilmington.....	19.3
33	North Dakota 1.....	Scandinavian and Canadian population.....	113,603	12.0	.....	10.9
	North Dakota 2.....	Scandinavian population.....	262,681	8.0	.....	12.8
	North Dakota 3.....	Russian population.....	200,772	6.0	.....	8.6
34	Ohio 1.....	Dense foreign population.....	989,804	478.0	(Cleveland.....)20 (Toledo.....)	85.3
	Ohio 2.....	Intermediate.....	919,823	114.0	Youngstown.....21 (Akron.....)	51.3
	Ohio 3.....	Agricultural area.....	2,493,883	81.0	(Columbus.....)22 (Dayton.....)	38.2
	Ohio 4.....	Urban area.....	363,591	7,279.0	Cincinnati.....	100.0
35	Oklahoma 1.....	Marked Indian and Negro population.....	615,973	24.0	Muscogee.....	17.2
	Oklahoma 2.....	Chiefly white population.....	1,041,182	23.0	Oklahoma City.....	20.6
36	Oregon 1.....	Fairly densely populated.....	445,464	29.5	Portland.....	56.9
	Oregon 2.....	{Columbia River Valley and coastal dry plain, sparsely populated.}	227,301	2.8	.....	23.4
37	Pennsylvania 1.....	Urban area.....	1,549,008	11,647.0	Philadelphia.....	100.0
	Pennsylvania 2.....	Rural area, native stock.....	1,877,385	132.0	(Reading.....)23 (Harrisburg.....)	42.5
	Pennsylvania 3.....	Mining area.....	1,067,487	245.0	(Scranton.....)24 (Wilkes-Barre.....)	66.7
	Pennsylvania 4.....	Coal mining.....	357,356	118.5	.....	33.7
	Pennsylvania 5.....	Manufacturing.....	750,892	182.0	Johnstown..... (Altoona.....)	37.7
	Pennsylvania 6.....	Rural area.....	892,495	74.0	(Erie.....)25 (New Castle.....)	40.5
	Pennsylvania 7.....	{Allegheny County plus a small rural area.....}	1,363,333	181.0	Pittsburgh..... (McKeesport.....)	70.4
38	Rhode Island.....	State undivided.....	542,610	508.0	(Providence.....)26 (Pawtucket.....)	96.7
39	South Carolina 1.....	Native white.....	300,348	77.0	.....	16.9
	South Carolina 2.....	Large Negro population.....	638,941	50.0	Columbia.....	12.8
	South Carolina 3.....	Peninsular and rural areas.....	576,111	41.0	Charleston.....	16.1
40	South Dakota 1.....	Dry farming area.....	480,230	9.0	.....	15.2
	South Dakota 2.....	Large Russian population.....	87,826	8.0	.....	4.2
	South Dakota.....	Indian population.....	15,832	1.0	.....	.....
41	Tennessee 1.....	Negroes, Mississippi bottoms.....	352,510	57.5	.....	9.5
	Tennessee 2.....	Agricultural region.....	1,148,013	51.5	(Memphis.....)27 (Nashville.....)	27.8
	Tennessee 3.....	Mountainous region.....	683,266	51.5	Chattanooga.....	12.9



of the various sections of the United States—Continued.

Native white.			Negro.	Indian, Chinese, Japanese.	German.	Irish.	English.	Austrian and Russian.	Scandinavian.	Italian.	Canadian, French.	Canadian, other.	Hungarian.	Mexican.	Scotch.
Native par-entage.	Foreign par-entage.	Foreign-born white.													
61.1	3.8	6.2	.1	<sup>1</sup> 29.1	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.6	.....
86.9	6.2	5.0	.6	<sup>1</sup> 1.2	1.4	.....	.....	.....	.....	1.1	.....	.....	.....	1.5	.....
61.5	19.8	16.8	.6	<sup>1</sup> 1.3	1.2	.....	.....	.....	.....	.....	.....	.....	.....	14.3	.....
44.7	27.6	24.6	2.9	.....	7.3	10.6	2.8	<sup>2</sup> 2.8 <sup>3</sup> 4.0 <sup>1</sup> 5.1	.....	8.3	.....	.....	1.5	.....	1.1
19.3	38.1	40.4	1.9	.....	12.7	11.7	2.3	<sup>2</sup> 6.1 <sup>3</sup> 5.1 <sup>1</sup> 5.1	.....	11.1	.....	.....	2.3	.....	.....
59.4	24.2	15.7	.7	.....	6.6	8.2	2.4	<sup>2</sup> 1.6 <sup>3</sup> 2.7 <sup>1</sup> 2.1	.....	3.7	1.8	.....	.....	.....	.....
47.8	30.9	20.6	.5	.....	10.8	7.6	3.6	<sup>2</sup> 2.7 <sup>3</sup> 2.7 <sup>1</sup> 2.8	.....	4.7	.....	3.4	.....	.....	.....
60.4	20.0	16.0	2.5	.....	5.8	7.6	2.1	<sup>2</sup> 2.6 <sup>3</sup> 3.4 <sup>1</sup> 3.8	.....	5.4	.....	.....	.....	.....	.....
28.2	43.2	28.0	.4	.....	27.9	6.1	2.4	.....	.....	4.4	.....	4.7	.....	.....	.....
70.8	17.9	10.5	.6	.....	4.9	5.3	1.8	.....	2.4	2.4	.....	.....	.....	.....	.....
62.5	24.7	12.0	.2	.....	1.1	5.4	.....	<sup>2</sup> 1.0	.....	1.0	6.7	5.1	.....	.....	.....
90.8	.5	.2	8.3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
74.7	.4	.3	24.7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
60.9	.4	.2	38.1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
51.9	.3	.2	47.3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
69.6	.3	.1	29.8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
57.1	.9	.7	41.2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
21.2	47.7	28.6	.....	<sup>1</sup> 2.4	6.2	1.5	1.2	<sup>2</sup> 2.2	24.0	.....	.....	16.0	.....	.....	.....
31.8	43.3	24.2	.....	<sup>1</sup> 1.6	8.0	1.5	.....	<sup>2</sup> 1.4	30.6	.....	.....	3.8	.....	.....	.....
27.3	41.4	29.9	.....	<sup>1</sup> 1.2	8.5	1.2	1.3	<sup>2</sup> 6.7 <sup>3</sup> 8.5 <sup>1</sup> 4.8	13.9	.....	.....	2.9	.....	.....	.....
33.1	37.1	28.4	1.3	.....	18.9	4.2	3.1	<sup>2</sup> 2.8 <sup>3</sup> 1.2	.....	2.1	.....	1.8	6.2	.....	.....
64.7	20.0	15.0	1.1	.....	6.3	2.3	3.9	.....	3.0	.....	.....	3.6	.....	.....	.....
78.7	13.7	4.8	2.8	.....	7.1	1.6	.....	.....	.....	.....	.....	.....	.....	.....	.....
42.6	36.4	15.6	5.4	.....	24.3	5.3	.....	<sup>2</sup> 2.2	.....	1.0	.....	.....	1.9	.....	.....
72.6	2.9	1.5	13.7	<sup>1</sup> 9.2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
82.7	7.2	3.7	5.0	<sup>1</sup> 1.7	2.4	.....	.....	<sup>2</sup> 1.2	.....	.....	.....	.....	.....	.....	.....
55.5	23.1	18.5	.3	<sup>1</sup> 1.4 <sup>2</sup> 1.5 <sup>3</sup> 1.8	7.4	1.9	2.2	<sup>2</sup> 1.3 <sup>3</sup> 1.8	5.2	1.2	.....	2.6	.....	.....	.....
74.5	14.3	9.1	.1	<sup>1</sup> 1.4 <sup>2</sup> 4.3 <sup>3</sup> 5.3	3.2	1.4	1.4	.....	2.7	.....	.....	1.7	.....	.....	.....
37.7	32.1	24.7	5.4	.....	9.7	12.8	3.7	<sup>2</sup> 1.9 <sup>3</sup> 8.8 <sup>1</sup> 1.6	.....	4.8	.....	.....	1.1	.....	.....
79.5	9.8	7.9	2.6	.....	3.2	2.5	1.0	<sup>2</sup> 1.0 <sup>3</sup> 10.0 <sup>1</sup> 11.0	.....	1.9	.....	.....	1.2	.....	.....
42.5	32.5	23.8	.2	.....	5.6	6.7	6.4	<sup>2</sup> 6.1 <sup>3</sup> 2.8 <sup>1</sup> 11.4	.....	3.9	.....	.....	2.3	.....	.....
61.3	18.1	18.4	2.2	.....	1.6	1.7	2.3	<sup>2</sup> 11.4 <sup>3</sup> 2.4 <sup>1</sup> 3.8	.....	5.9	.....	.....	5.5	.....	.7
56.8	19.7	22.2	1.3	.....	4.5	1.5	2.0	<sup>2</sup> 3.8 <sup>3</sup> 1.7 <sup>1</sup> 4.7	2.8	4.1	.....	.....	1.7	.....	.....
64.1	20.5	14.8	.6	.....	5.4	2.7	1.8	<sup>2</sup> 6.5 <sup>3</sup> 4.7 <sup>1</sup> 2.7	.....	3.3	.....	.....	.....	.....	.....
45.6	29.3	22.3	2.7	.....	10.7	5.8	2.9	.....	2.3	7.8	11.4	1.9	.....	.....	1.8
29.4	35.9	32.8	1.8	.....	1.7	13.5	7.8	.....	.....	.....	.....	.....	.....	.....	.....
67.8	.4	.3	31.4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
39.5	.5	.3	59.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
35.7	1.2	.6	62.2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
44.7	37.2	16.8	.....	<sup>1</sup> 1.1	10.7	2.4	1.6	<sup>2</sup> 1.7 <sup>3</sup> 1.3 <sup>1</sup> 3.3	15.5	.....	.....	1.3	.....	.....	.....
33.5	43.8	22.3	.....	.....	10.3	1.2	1.0	<sup>2</sup> 3.3 <sup>3</sup> 25.6	7.5	.....	.....	.....	.....	.....	.....
8.1	1.6	2.5	.....	<sup>1</sup> 7.2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
54.5	.8	.4	44.2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
74.1	2.4	1.1	22.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
89.5	1.1	.6	9.3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

<sup>1</sup> Indian.<sup>2</sup> Austrian.<sup>3</sup> Russian.<sup>4</sup> Chinese.<sup>5</sup> Japanese.

TABLE 94.—*Characteristics and composition of the population*

State No.	Designation of section.	Characteristics.	Total population.	Density per square mile.	Cities of 25,000 or over.	Per cent urban.
42	Texas 1.....	Large Mexican population.....	606,641	8.0	{San Antonio.....	33.8
	Texas 2.....	Sparsely settled, white.....	2,663,848	16.7	{El Paso.....28	22.3
	Texas 3.....	German and Negro population.....	199,787	32.5	{Houston.....	22.8
	Texas 4.....	Coastal native population.....	268,413	17.5	{Austin.....	31.5
	Texas 5.....	Large Negro population.....	157,853	24.0	{Galveston.....	6.3
43	Utah 1.....	Sparsely populated.....	88,753	1.3	.....	17.2
	Utah 2.....	More densely populated.....	254,504	44.0	{Salt Lake City..	60.6
	Utah.....	Mining area.....	30,094	3.0	{Ogden.....	11.4
44	Vermont.....	State undivided.....	355,956	39.0	.....	47.5
45	Virginia 1.....	Peninsular region and east shore.....	324,242	130.0	{Norfolk.....	38.9
	Virginia 2.....	Large Negro population.....	601,358	50.0	{Portsmouth.....	27.9
	Virginia 3.....	Native rural region.....	495,840	44.0	{Richmond.....	16.6
	Virginia 4.....	Mountain, white.....	640,172	43.0	{Lynchburg.....	15.6
46	Washington 1.....	{Coastal region plus eastern coun- ties.....}	436,342	14.0	{Spokane.....	43.4
	Washington 2.....	Puget Sound, foreign white.....	569,055	54.0	{Seattle.....	68.1
	Washington 3.....	Mountainous area.....	136,283	6.0	{Tacoma.....	17.7
47	West Virginia 1.....	.....do.....	186,238	29.0	.....	13.3
	West Virginia.....	Agricultural region.....	1,034,881	59.0	{Wheeling.....	19.6
48	Wisconsin 1.....	{Scandinavian and German popu- lation.....}	496,265	24.0	{Huntington.....	26.4
	Wisconsin 2.....	German population.....	1,053,772	35.0	{La Crosse.....	30.4
	Wisconsin 3.....	Urban and foreign stock.....	433,187	1,881.0	{Oshkosh 29.....	90.9
	Wisconsin 4.....	Lake counties.....	350,636	84.0	{Green Bay.....	45.5
49	Wyoming.....	{State undivided, sparsely popu- lated.....}	145,965	1.5	{Superior 30.....	29.6
					{Racine.....	

of the various sections of the United States—Continued.

Native white.		Foreign-born white.	Negro.	Indian, Chinese, Japanese.	German.	Irish.	English.	Austrian and Russian.	Scandinavian.	Italian.	Canadian, French.	Canadian, other.	Hungarian.	Mexican.	Scotch.
Native part-entage.	Foreign part-entage.														
44.1	25.0	21.2	9.6	.....	5.5	.....	.....	.....	.....	.....	.....	.....	.....	17.1	.....
77.6	4.1	2.3	15.9	.....	1.6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
33.9	26.5	11.4	28.1	.....	7.1	.....	.....	<sup>1</sup> 5.4	.....	.....	.....	.....	.....	1.7	.....
52.3	13.1	7.7	26.8	.....	4.7	.9	.....	<sup>1</sup> 1.3	.....	1.5	.....	.....	.....	1.2	.....
37.3	7.6	4.0	51.1	.....	30.0	.....	.....	<sup>1</sup> 3.0	.....	1.5	.....	.....	.....	.....	.....
53.6	31.4	11.7	.1	<sup>2</sup> 3.7	.....	.....	8.3	.....	10.4	1.0	.....	.....	.....	.....	1.2
43.5	36.8	18.6	.4	<sup>2</sup> 7	2.4	1.1	13.2	.....	10.5	.....	.....	.....	.....	.....	1.8
44.5	33.7	20.2	.....	<sup>2</sup> 1.6	.....	1.6	13.2	.....	3.4	3.7	.....	.....	.....	.....	2.0
64.4	21.1	14.0	.5	.....	.....	4.1	1.0	<sup>3</sup> 1.0	.....	1.8	7.8	4.4	.....	.....	1.1
49.5	3.6	2.8	44.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
46.6	2.4	1.4	49.6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
64.8	1.3	.7	33.2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
88.0	.9	.8	10.2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
57.6	22.9	17.7	.4	<sup>2</sup> 7 <sup>4</sup> 3 <sup>5</sup> 4 <sup>2</sup> 6 <sup>4</sup> 2 <sup>5</sup> 1.8 <sup>2</sup> 3.3 <sup>4</sup> 1 <sup>5</sup> 4	6.2	2.0	1.9	<sup>1</sup> 1.3 <sup>3</sup> 2.0	6.7	1.0	.....	3.3	.....	.....	.....
44.5	27.2	25.1	.7	<sup>4</sup> 2 <sup>5</sup> 1.8 <sup>2</sup> 3.3 <sup>4</sup> 1 <sup>5</sup> 4	5.7	2.4	3.2	<sup>1</sup> 1.5 <sup>3</sup> 1.1	13.5	1.6	.....	5.0	.....	.....	1.2
59.4	20.6	15.6	.5	<sup>2</sup> 3.3 <sup>4</sup> 1 <sup>5</sup> 4	4.6	1.6	2.4	<sup>1</sup> 2.2 <sup>3</sup> 1.4	3.3	1.8	.....	3.3	.....	.....	1.0
86.8	3.7	4.8	4.5	.....	.....	.....	.....	1.1	.....	2.4	.....	.....	.....	.....	.....
85.7	4.9	4.6	5.4	.....	1.6	.....	.....	.....	.....	1.6	.....	.....	.....	.....	.....
31.8	44.2	23.1	.1	<sup>2</sup> 8	13.6	1.7	.....	<sup>1</sup> 3.2 <sup>3</sup> 1.3 <sup>5</sup> 1.8 <sup>3</sup> 1.0	22.3	.....	1.5	2.5	.....	.....	.....
38.0	43.2	18.2	.1	<sup>2</sup> 5	26.3	2.9	1.7	<sup>1</sup> 1.8 <sup>3</sup> 1.0	10.2	.....	.....	.....	.....	.....	.....
21.6	48.3	29.8	.2	.....	43.9	2.1	1.1	<sup>1</sup> 4.5 <sup>3</sup> 4.1 <sup>4</sup> 4.3 <sup>5</sup> 2.5	1.1	1.1	.....	.....	1.9	.....	.....
31.7	45.9	21.9	.1	<sup>2</sup> 3	27.1	2.1	1.3	<sup>1</sup> 4.3 <sup>3</sup> 2.5	4.6	.....	.....	.....	.....	.....	.....
55.3	22.3	18.6	1.5	<sup>2</sup> 1.0 <sup>5</sup> 1.1	4.3	2.5	3.8	<sup>1</sup> 3.6	2.7	1.6	.....	1.2	.....	.....	2.0

<sup>1</sup> Austrian.<sup>2</sup> Indian.<sup>3</sup> Russian.<sup>4</sup> Chinese.<sup>5</sup> Japanese.



TABLE 98.—*List of counties comprised in each "section."*

## ALABAMA.

Section I: Blount, Cherokee, Colbert, Cullman, De Kalb, Etowah, Fayette, Franklin, Jackson, Jefferson, Lamar, Lauderdale, Lawrence, Limestone, Madison, Marion, Marshall, Morgan, Tuscaloosa, Walker, Winston.

Section II: Autauga, Barbour, Bullock, Butler, Chambers, Clarke, Dallas, Lee, Lowndes, Macon, Marengo, Monroe, Montgomery, Perry, Russell, Wilcox.

Section III: Baldwin, Bibb, Calhoun, Chilton, Clay, Cleburne, Coffee, Conecuh, Coosa, Covington, Crenshaw, Dale, Elmore, Escambia, Geneva, Henry, Houston, Pike, Randolph, St. Clair, Shelby, Talladega, Tallapoosa.

Section IV: Choctaw, Greene, Hale, Pickens, Sumter.

Section V: Mobile and Washington.

## ARIZONA.

Section I: Apache, Coconino, Gila, Mohave, Navajo, Pinal.

Section II: Cochise, Graham, Greenlee, Maricopa, Pima, Santa Cruz, Yavapai, Yuma.

## ARKANSAS.

Section I: Ashley, Chicot, Columbia, Crittenden, Cross, Desha, Drew, Hempstead, Jackson, Jefferson, Lafayette, Lee, Lincoln, Little River, Lonoke, Miller, Mississippi, Monroe, Ouachita, Phillips, Pulaski, St. Francis, Union, Woodruff.

Section II: Baxter, Boone, Carroll, Cleburne, Fulton, Izaard, Madison, Marion, Montgomery, Newton, Polk, Searcy, Scott, Sharp, Stone, Van Buren.

Section III: Arkansas, Benton, Bradley, Calhoun, Clark, Clay, Cleveland, Conway, Craighead, Crawford, Dallas, Faulkner, Franklin, Garland, Grant, Greene, Hot Spring, Howard, Independence, Johnson, Lawrence, Logan, Nevada, Perry, Pike, Poinsett, Pope, Prairie, Randolph, Saline, Sebastian, Sevier, Washington, White, Yell.

## CALIFORNIA.

Section I: Alameda, Butte, Colusa, Contra Costa, Del Norte, Fresno, Glenn, Humboldt, Kern, Kings, Lake, Los Angeles, Madera, Marin, Mendocino, Merced, Monterey, Napa, Orange, Sacramento, San Benito, San Diego, San Joaquin, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Santa Cruz, Shasta, Siskiyou, Solano, Sonoma, Stanislaus, Sutter, Tehama, Trinity, Tulare, Ventura, Yolo, Yuba.

Section II: Amador, Calaveras, Eldorado, Lassen, Mariposa, Modoc, Nevada, Placer, Plumas, Sierra, Tuolumne.

Section III: Alpine, Imperial, Inyo, Mono, Riverside, San Bernardino.

Section IV: Includes city of Los Angeles.

Section V: Includes city of San Francisco.

## COLORADO.

Section I: Alamosa, Archuleta, Conejos, Costilla, Delta, Garfield, Grand, Hinsdale, Jackson, La Plata, Mesa, Mineral, Moffat, Montezuma, Montrose, Rio Blanco, Rio Grande, Routt, Saguache.

Section II: Larimer, Logan, Morgan, Phillips, Sedgwick, Weld.

Section III: Boulder, Clear Creek, Eagle, Douglas, Gilpin, Jefferson, Park, Summit, Teller.

Section IV: Adams, Arapahoe, Baca, Bent, Cheyenne, Crowley, Elbert, El Paso, Kiowa, Kit Carson, Lincoln, Otero, Prowers, Washington, Yuma.

Section V: Includes city and county of Denver.

Section VI: Chaffee, Custer, Dolores, Fremont, Gunnison, Huerfano, Lake, Las Animas, Ouray, Pitkin, Pueblo, San Juan, San Miguel.

## CONNECTICUT.

Section I: Fairfield, Litchfield, Middlesex, New London, Tolland, Windham.

Section II: Hartford, New Haven.

Cities not included in counties, Bridgeport and Stamford.

## DELAWARE.

Section I: Includes entire State.

## DISTRICT OF COLUMBIA.

Section I: Includes entire District.

## FLORIDA.

Section I: Bay, Calhoun, Duval, Escambia, Franklin, Holmes, Jackson, Lafayette, Liberty, Nassau, Okaloosa, Santa Rosa, Taylor, Wakulla, Walton, Washington.

Section II: Alachua, Citrus, Columbia, Gadsden, Hamilton, Hernando, Jefferson, Leon, Levy, Madison, Marion, Putnam, Suwanee.

Section III: Includes county of Monroe.

Section IV: Baker, Bradford, Brevard, Broward, Clay, Dade, De Soto, Hillsboro, Lake, Lee, Manatee, Orange, Osceola, Palm Beach, Pasco, Pinellas, Polk, St. Johns, St. Lucie, Seminole, Sumter, Volusia.

## GEORGIA.

Section I: Appling, Bacon, Banks, Barrow, Bartow, Ben Hill, Berrien, Brooks, Bullock, Campbell, Candler, Carroll, Catoosa, Charlton, Chattooga, Cherokee, Clayton, Clinch, Cobb, Coffee, Colquitt, Dade, Dawson, Dekalb, Dodge, Douglas, Echols, Effingham, Emanuel, Evans, Fannin, Fayette, Floyd, Forsyth, Franklin, Fulton, Gilmer, Gordon, Grady, Gwinnett, Hall, Habersham, Haralson, Hart, Heard, Irwin, Jackson, Jeff Davis, Johnson, Laurens, Lowndes, Madison, Lumpkin, Milton, Montgomery, Murray, Oconee, Paulding, Pickens, Pierce, Polk, Rabun, Rockdale, Stephens, Tattnall, Telfair, Thomas, Tift, Toombs, Towns, Turner, Union, Walker, Walton, Ware, Wayne, Wheeler, White, Whitfield, Wilcox, and Worth.

Section II: Baker, Baldwin, Bibb, Bleckley, Bryan, Burke, Butts, Calhoun, Camden, Chatham, Chattahoochee, Clarke, Clay, Columbia, Coweta, Crawford, Crisp, Decatur, Dooly, Dougherty, Early, Elbert, Glasscock, Glynn, Greene, Hancock, Harris, Henry, Houston, Jasper, Jefferson, Jenkins, Jones, Lee, Liberty, Lincoln, McDuffie, McIntosh, Macon, Marion, Meriwether, Miller, Mitchell, Monroe, Morgan, Muscogee, Newton, Oglethorpe, Pike, Pulaski, Putnam, Quitman, Randolph, Richmond, Schley, Screven, Spalding, Stewart, Sumter, Talbot, Taliaferro, Taylor, Terrell, Troup, Twiggs, Upson, Warren, Washington, Webster, Wilkes, and Wilkinson.

## IDAHO.

Section I: Includes entire State.

## ILLINOIS.

Section I: Cook (except city of Chicago), Dupage, Kane, Lake.

Cities not included in counties, Joliet.

Section II: Adams, Bureau, Fulton, Grundy, Hancock, Henderson, Henry, Kendall, Knox, La Salle, Marshall, Mercer, Peoria, Putnam, Rock Island, Stark, Warren, Will.

Cities not included in counties, Rockford.

Section III: Bond, Calhoun, Christian, Clark, Clay, Coles, Crawford, Cumberland, Douglas, Edgar, Edwards, Effingham, Fayette, Franklin, Gallatin, Greene, Hamilton, Hardin, Jackson, Jasper, Jefferson, Jersey, Johnson, Lawrence, Marion, Montgomery, Morgan, Moultrie, Perry, Pike, Pope, Richland, Saline, Sangamon, Scott, Shelby, Union, Wabash, Wayne, White, Williamson.

Cities not included in counties, Decatur and Danville.

Section IV: Clinton, Macoupin, Madison, Monroe, Randolph, St. Clair, Washington.

Section V: Includes city of Chicago.

Section VI: Alexander, Massac, Pulaski.

Section VII: Brown, Cass, Champaign, Dewitt, Ford, Iroquois, Kankakee, Livingston, Logan, McDonough, McLean, Macon, Mason, Menard, Piatt, Schuyler, Tazewell, Vermillion, Woodford.

Section VIII: Boone, Carroll, Dekalb, Jo Daviess, Lee, McHenry, Ogle, Stephenson, Whiteside, Winnebago.

## INDIANA.

Section I: Elkhart, Lake, Laporte, Porter, St. Joseph.

Section II: Benton, Jasper, Newton, Pulaski, Starke, Tippecanoe, Warren, White.

Section III: Adams, Allen, Bartholomew, Blackford, Boone, Brown, Carroll, Cass, Clark, Clay, Clinton, Crawford, Daviess, Dearborn, Decatur, Dela-  
 kalb, Delaware, Dubois, Fayette, Floyd, Fountain, Franklin, Fulton, Gibson, Grant, Greene, Hamilton, Hancock, Harrison, Hendricks, Henry, Howard, Hunt-  
 ington, Jackson, Jay, Jefferson, Jennings, Johnson, Knox, Kosciusko, Lagrange,  
 Lawrence, Madison, Marion, Marshall, Martin, Miami, Monroe, Montgomery, Morgan, Noble, Ohio, Orange, Owen, Parke, Perry, Pike, Posey, Putnam, Ran-  
 dolph, Ripley, Rush, Scott, Shelby, Spencer, Steuben, Sullivan, Switzerland, Tipton, Union, Vanderburg, Vermillion, Vigo, Wabash, Warrick, Washington, Wayne, Wells, Whitley.

## IOWA..

Section I: Allamakee, Audubon, Benton, Blackhawk, Boone, Bremer, Buchanan, Buena Vista, Butler, Calhoun, Carroll, Cass, Cedar, Cerro Gordo, Cherokee, Chickasaw, Clay, Clayton, Clinton, Crawford, Delaware, Dickinson, Dubuque, Emmett, Fayette, Floyd, Franklin, Grundy, Hamilton, Hancock, Hardin, Harrison, Howard, Humboldt, Ida, Iowa, Jackson, Johnson, Jones, Linn, Lyon, Marshall, Mitchell, Monona, Muscatine, O'Brien, Osceola, Palo Alto, Plymouth, Pocahontas, Pottawattamie, Sac, Scott, Shelby, Sioux, Story, Tama, Webster, Winnebago, Winneshiek, Woodbury, Worth, Wright.

Section II: Adair, Adams, Appanoose, Clarke, Dallas, Davis, Decatur, Des Moines, Fremont, Greene, Guthrie, Henry, Jasper, Jefferson, Keokuk, Lee, Louisa, Lucas, Madison, Mahaska, Marion, Mills, Monroe, Montgomery, Page, Polk, Poweshiek, Ringgold, Taylor, Union, Van Buren, Wapello, Warren, Washington, Wayne.

## KANSAS.

Section I: Barton, Ellis, Gove, Greeley, Hamilton, Harvey, Kearny, Logan, McPherson, Marion, Ness, Reno, Rice, Rush, Russell, Trego, Wallace, Wichita.

Section II: Allen, Anderson, Atchison, Barber, Bourbon, Brown, Butler, Chase, Chautauqua, Cherokee, Cheyenne, Clark, Clay, Cloud, Coffey, Comanche, Cowley, Crawford, Decatur, Dickinson, Doniphan, Douglas, Edwards, Elk, Ellsworth, Finney, Ford, Franklin, Geary, Graham, Grant, Gray, Greenwood, Harper, Haskell, Hodgeman, Jackson, Jefferson, Jewell, Johnson, Kingman, Kiowa, Labette, Lane, Leavenworth, Lincoln, Linn, Lyon, Marshall, Meade, Miami, Mitchell, Montgomery, Morris, Morton, Nemaha, Neosho, Norton, Osage, Osborne, Ottawa, Pawnee, Phillips, Pottawatomie, Pratt, Rawlins, Republic, Riley, Rooks, Saline, Scott, Sedgwick, Seward, Shawnee, Sheridan, Sherman, Smith, Stafford, Stanton, Stevens, Sumner, Thomas, Wabaunsee, Washington, Wilson, Woodson, Wyandotte.

## KENTUCKY.

Section I: Bell, Boyd, Breathitt, Carter, Clay, Clinton, Cumberland, Elliott, Floyd, Greenup, Harlan, Jackson, Johnson, Knott, Knox, Laurel, Lawrence, Lee, Leslie, Letcher, Lewis, Magoffin, Martin, Menifee, Monroe, Morgan, Owsley, Perry, Pike, Pulaski, Rockcastle, Rowan, Russell, Wayne, Whitley, Wolfe.

Section II: Adair, Allen, Anderson, Ballard, Barren, Bath, Boone, Bourbon, Boyle, Bracken, Breckinridge, Bullitt, Butler, Caldwell, Calloway, Campbell, Carlisle, Carroll, Casey, Christian, Clark, Crittenden, Daviess, Edmonson, Estill, Fayette, Fleming, Franklin, Fulton, Gallatin, Garrard, Grant, Graves, Grayson, Green, Hancock, Hardin, Harrison, Hart, Henderson, Henry, Hickman, Hopkins, Jefferson, Jessamine, Kenton, Larue, Lincoln, Livingston, Logan, Lyon, McCracken, McLean, Madison, Marion, Marshall, Mason, Meade, Mercer, Metcalfe, Montgomery, Muhlenberg, Nelson, Nicholas, Ohio, Oldham, Owen, Pendleton, Powell, Robertson, Scott, Shelby, Simpson, Spencer, Taylor, Todd, Trigg, Trimble, Union, Warren, Washington, Webster, Woodford.



## LOUISIANA.

Section I (parishes): Ascension Bossier, Caddo, Claiborne, Concordia, De Soto, East Baton Rouge, East Carroll, East Feliciana, Iberville, Jefferson, Madison, Morehouse, Natchitoches, Ouachita, Plaquemines, Pointe Coupee, Red River, Richland, St. Charles, St. James, St. John the Baptist, St. Mary, Tensas, Webster, West Baton Rouge, West Carroll, West Feliciana.

Section II: Includes parish of Orleans:

Section III (parishes): Acadia, Allen, Assumption, Avoyelles, Beauregard, Bienville, Calcasieu, Caldwell, Cameron, Catahoula, Evangeline, Franklin, Grant, Iberia, Jackson, Jefferson Davis, Lafayette, Lafourche, La Salle, Lincoln, Livingston, Rapides, Sabine, St. Bernard, St. Helena, St. Landry, St. Martin, St. Tammany, Tangipahoa, Terrebonne, Union, Vermilion, Vernon, Washington, Winn.

## MAINE.

Section I: Aroostook, Penobscot, Piscataquis, Washington.

Section II: Hancock, Knox, Lincoln, Sagadahoc, Waldo.

Section III: Androscoggin, Cumberland, Franklin, Kennebec, Oxford, Somerset, York.

## MARYLAND.

Section I: Includes county and city of Baltimore.

Section II: Caroline, Dorchester, Kent, Queen Anne, Somerset, Talbot, Wicomico, Worcester.

Section III: Allegany, Anne Arundel, Carroll, Cecil, Frederick, Garrett, Harford, Howard, Montgomery, Prince Georges, Washington.

Section IV: Calvert, Charles, St. Marys.

## MASSACHUSETTS.

Section I: Berkshire, Franklin.

Section II: Bristol, Essex, Hampden, Hampshire, Middlesex, Norfolk, Worcester.

Section III: Barnstable, Dukes, Nantucket, Plymouth.

Section IV: Suffolk.

## MICHIGAN.

Section I: Alger, Baraga, Gogebic, Houghton, Iron, Keweenaw, Luce, Marquette, Ontonagon.

Section II: Alcona, Alpena, Antrim, Arenac, Barry, Benzie, Branch, Calhoun, Cass, Charlevoix, Cheboygan, Chippewa, Clare, Clinton, Crawford, Delta, Dickinson, Eaton, Emmet, Genesee, Gladwin, Grand Traverse, Gratiot, Hillsdale, Ingham, Ionia, Iosco, Isabella, Jackson, Kalamazoo, Kalkaska, Lake, Leelanau, Livingston, Mackinac, Manistee, Mason, Mecosta, Menominee, Midland, Missaukee, Montcalm, Montmorency, Newaygo, Oceana, Ogemaw, Osceola, Oscoda, Otsego, Presque Isle, Roscommon, St. Joseph, Schoolcraft, Shiawassee, Wexford.

City not included in counties, Grand Rapids.

Section III: Bay, Huron, Lapeer, Lenawee, Macomb, Monroe, Oakland, Saginaw, St. Clair, Sanilac, Tuscola, Washtenaw, Wayne (except for city of Detroit).

Section IV: Includes city of Detroit.

Section V: Allegan, Berrien, Kent, Muskegon, Ottawa, Van Buren.

## MINNESOTA.

Section I: Aitkin, Anoka, Becker, Beltrami, Big Stone, Cass, Chippewa, Chisago, Clay, Clearwater, Crow Wing, Douglas, Grant, Hubbard, Isanti, Kanabec, Kandiyohi, Kittson, Koochiching, Lac qui Parle, Mahnomon, Marshall, Meeker, Mille Lacs, Norman, Otter Tail, Pennington, Pine, Polk, Pope, Red Lake, Renville, Roseau, Sherburne, Stevens, Swift, Todd, Traverse, Wadena, Wilkin.

Section II: Benton, Blue Earth, Brown, Carver, Cottonwood, Dakota, Dodge, Faribault, Fillmore, Freeborn, Goodhue, Hennepin, Houston, Jackson, Le Sueur, Lincoln, Lyon, McLeod, Martin, Morrison, Mower, Murray, Nicollet, Nobles, Olm-

stead, Pipestone, Ramsay, Redwood, Rice, Rock, Scott, Sibley, Stearns, Steele, Wabasha, Waseca, Washington, Watonwan, Winona, Wright, Yellow Medicine.

Section III: Carlton, Cook, Itasca, Lake, St. Louis.

Section IV: Includes cities of Minneapolis and St. Paul.

#### MISSISSIPPI.

Section I: Adams, Amite, Attala, Benton, Bolivar, Carroll, Chickasaw, Claiborne, Clay, Coahoma, Copiah, De Soto, Grenada, Hinds, Holmes, Issaquena, Jefferson, Jefferson Davis, Kemper, Lafayette, Leflore, Lowndes, Madison, Marshall, Monroe, Montgomery, Noxubee, Panola, Oktibbeha, Rankin, Sharkey, Sunflower, Tallahatchie, Tate, Tunica, Warren, Washington, Wilkinson, Yazoo.

Section II: Alcorn, Calhoun, Choctaw, Clarke, Covington, Forrest, Franklin, George, Greene, Hancock, Harrison, Itawamba, Jackson, Jasper, Jones, Lamar, Lauderdale, Lawrence, Leake, Lee, Lincoln, Marion, Neshoba, Newton, Pearl River, Perry, Pike, Pontotoc, Prentiss, Scott, Simpson, Smith, Stone, Tippah, Tishomingo, Union, Walthall, Wayne, Webster, Winston.

#### MISSOURI.

Section I: Adair, Andrew, Atchison, Barton, Bates, Benton, Bollinger, Buchanan, Butler, Caldwell, Camden, Carroll, Carter, Cass, Cedar, Clark, Clay, Clinton, Cole, Crawford, Dade, Dallas, Daviess, Dekalb, Dent, Dunklin, Franklin, Gasconade, Gentry, Greene, Grundy, Harrison, Henry, Hickory, Holt, Iron, Jasper, Jefferson, Johnson, Knox, Laclede, Lawrence, Lewis, Linn, Livingston, Macon, Madison, Maries, Mercer, Miller, Moniteau, Morgan, Newton, Nodaway, Oregon, Osage, Perry, Phelps, Platte, Polk, Pulaski, Putnam, Ray, Reynolds, Ripley, St. Clair, St. Francois, St. Louis, Ste. Genevieve, Schuyler, Scotland, Shannon, Shelby, Stoddard, Sullivan, Texas, Vernon, Washington, Wayne, Worth.

City not included in counties, Kansas City.

Section II: Audrain, Boone, Callaway, Cape Girardeau, Chariton, Cooper, Howard, Jackson, Lafayette, Lincoln, Marion, Mississippi, Monroe, Montgomery, New Madrid, Pemiscot, Pettis, Pike, Ralls, Randolph, St. Charles, Saline, Scott, Warren.

Section III: Barry, Christian, Douglas, Howell, McDonald, Ozark, Stone, Taney, Webster, Wright.

Section IV: Includes city of St. Louis.

#### MONTANA.

Section I: Broadwater, Carbon, Cascade, Deer Lodge, Flathead, Granite, Jefferson, Lewis and Clark, Lincoln, Mineral, Missoula, Powell, Sanders, Silver Bow, Stillwater, Yellowstone.

Section II: Beaverhead, Bighorn, Blaine, Carter, Chouteau, Custer, Dawson, Fallon, Fergus, Gallatin, Hill, Madison, Meagher, Musselshell, Park, Phillips, Prairie, Ravalli, Richland, Rosebud, Sheridan, Sweetgrass, Teton, Toole, Valley, Wheatland, Wibaux.

#### NEBRASKA.

Section I: Antelope, Banner, Blaine, Boxbutte, Boyd, Brown, Burt, Cass, Cedar, Chase, Cherry, Cheyenne, Cuming, Custer, Dakota, Dawes, Dawson, Deuel, Dixon, Dodge, Douglas, Dundy, Frontier, Gage, Garden, Garfield, Gosper, Grant, Greeley, Hayes, Holt, Hooker, Johnson, Keith, Keyapaha, Kimball, Knox, Lancaster, Lincoln, Logan, Loup, McPherson, Morrill, Nemaha, Otoe, Pawnee, Perkins, Pierce, Richardson, Rock, Sarpy, Saunders, Scotts Bluff, Sheridan, Sherman, Sioux, Thomas, Thurston, Valley, Washington, Wayne, Wheeler.

Section II: Adams, Boone, Buffalo, Butler, Clay, Colfax, Fillmore, Franklin, Furnas, Hall, Hamilton, Harlan, Hitchcock, Howard, Jefferson, Kearney, Madison, Merrick, Nance, Nuckolls, Phelps, Platte, Polk, Redwillow, Saline, Seward, Stanton, Thayer, Webster, York.

#### NEVADA.

Section I: Includes entire State.

## NEW HAMPSHIRE.

Section I: Carroll, Coos, Grafton.

Section II: Belknap, Cheshire, Hillsborough, Merrimack, Rockingham, Strafford, Sullivan.

## NEW JERSEY.

Section I: Bergen, Essex, Hudson, Passaic, Union.

Section II: Burlington, Camden, Cape May, Cumberland, Gloucester, Mercer, Middlesex, Monmouth, Ocean, Salem.

City not included in counties, Orange.

Section III: Atlantic, Hunterdon, Morris, Somerset, Sussex, Warren.

## NEW MEXICO.

Section I: McKinley, Rio Arriba, Sandoval, San Juan, Valencia.

Section II: Bernalillo, Chaves, Colfax, Curry, De Baca, Guadalupe, Lea, Lincoln, Mora, Quay, Roosevelt, San Miguel, Santa Fe, Socorro, Taos, Torrance, Union.

Section III: Dona Ana, Eddy, Grant, Lea (one-half), Luna, Otero, Sierra.

## NEW YORK.

Section I: Dutchess, Nassau, Putnam, Suffolk, Westchester.

Section II: Kings, New York, Queens, Richmond.

Section III: Albany, Columbia, Fulton, Herkimer, Montgomery, Otsego, Rensselaer, Saratoga, Schenectady, Schoharie, Washington.

Section IV: Cayuga, Erie (except city of Buffalo), Genesee, Jefferson, Monroe, Niagara, Oneida, Onondaga, Ontario, Orleans, Oswego, Seneca, Wayne.

Cities not included in counties, Amsterdam, Niagara Falls, Troy.

Section V: Greene, Orange, Rockland, Ulster.

Section VI: Includes city of Buffalo.

Section VII: Allegany, Broome, Cattaraugus, Chautauqua, Chemung, Chenango, Cortland, Delaware, Livingston, Madison, Schuyler, Steuben, Sullivan, Tioga, Tompkins, Wyoming, Yates.

Section VIII: Clinton, Essex, Franklin, Hamilton, Lewis, St. Lawrence, Warren.

## NORTH CAROLINA.

Section I: Ashe, Alleghany, Alexander, Avery, Buncombe, Burke, Caldwell, Cherokee, Clay, Haywood, Graham, Henderson, Jackson, McDowell, Macon, Madison, Mitchell, Polk, Rutherford, Swain, Transylvania, Watauga, Wilkes, Yancey.

Section II: Alamance, Cabarrus, Caswell, Catawba, Chatham, Cleveland, Davidson, Davie, Forsyth, Gaston, Guilford, Iredell, Lincoln, Mecklenburg, Orange, Person, Randolph, Rockingham, Rowan, Stokes, Surry, and Yadkin.

Section III: Anson, Cumberland, Harnett, Hoke, Lee, Montgomery, Moore, Richmond, Robeson, Sampson, Scotland, Stanley, Union.

Section IV: Beaufort, Bertie, Chowan, Craven, Durham, Edgecombe, Franklin, Gates, Granville, Greene, Halifax, Hertford, Jones, Johnston, Lenoir, Martin, Nash, Northhampton, Onslow, Pasquotank, Perquimans, Pitt, Vance, Wake, Warren, Washington, Wayne, Wilson.

Section V: Camden, Carteret, Currituck, Dare, Hyde, Pamlico, Tyrrell.

Section VI: Bladen, Brunswick, Columbus, Duplin, New Hanover, Pender.

## NORTH DAKOTA.

Section I: Bottineau, Cavalier, Golden Valley, Grand Forks, Pembina, Rollette, Towner, Walsh.

Section II: Adams, Barnes, Benson, Billings, Bowman, Burke, Cass, Divide, Eddy, Foster, Griggs, McKenzie, Mountrail, Nelson, Ramsay, Ranson, Renville, Richland, Sargent, Slope, Steele, Traill, Ward, Williams.

Section III: Burleigh, Dickey, Dunn, Emmons, Grant, Hettinger, Kidder, Lamoure, Logan, McHenry, McIntosh, McLean, Mercer, Morton, Oliver, Pierce, Sheridan, Sioux, Stark, Stutsman, Wells.



## OHIO.

Section I: Cuyahoga, Erie, Lake, Lorain, Lucas, Ottawa.

Section II: Ashtubula, Belmont, Carroll, Columbiana, Geauga, Guernsey, Harrison, Jefferson, Mahoning, Medina, Portage, Stark, Summit, Trumbull, Tuscarawas, Wayne.

Section III: Adams, Allen, Ashland, Athens, Auglaize, Brown, Butler, Champain, Clark, Clermont, Clinton, Coshocton, Crawford, Darke, Defiance, Delaware, Fairfield, Fayette, Franklin, Fulton, Gallia, Greene, Hamilton, Hancock, Hardin, Henry, Highland, Hocking, Holmes, Huron, Jackson, Knox, Lawrence, Licking, Logan, Madison, Marion, Meigs, Mercer, Miami, Monroe, Montgomery, Morgan, Morrow, Muskingum, Noble, Paulding, Perry, Pickaway, Pike, Preble, Putnam, Richland, Ross, Sandusky, Scioto, Seneca, Shelby, Union, Van Wert, Vinton, Warren, Washington, Williams, Wood, Wyandot.

Section IV: City of Cincinnati.

## OKLAHOMA.

Section I: Adair, Atoka, Bryan, Cherokee, Choctaw, Craig, Delaware, Haskell, Hughes, Johnston, Latimer, Le Flore, McCurtain, McIntosh, Mayes, Muskogee, Nowata, Okfuskee, Okmulgee, Osage, Ottawa, Pittsburg, Pushmataha, Rogers, Seminole, Sequoyah, Tulsa, Wagoner, Washington.

Section II: Alfalfa, Beaver, Beckham, Blaine, Caddo, Canadian, Carter, Cimarron, Cleveland, Coal, Comanche, Cotton, Creek, Custer, Dewey, Ellis, Garfield, Garvin, Grady, Grant, Greer, Harmon, Harper, Jackson, Jefferson, Kay, Kingfisher, Kiowa, Lincoln, Logan, Love, McClain, Major, Marshall, Murray, Noble, Oklahoma, Pawnee, Payne, Pontotoc, Pottawatomie, Roger Mills, Stephens, Texas, Tillman, Washita, Woods, Woodward.

## OREGON.

Section I: Benton, Clackamas, Clatsop, Columbia, Hood River, Lincoln, Linn, Marion, Multnomah, Polk, Tillamook, Wasco, Washington, Yamhill.

Section II: Baker, Coos, Crook, Curry, Douglas, Gilliam, Grant, Harney, Jackson, Josephine, Klamath, Lake, Lane, Malheur, Morrow, Sherman, Umatilla, Union, Wallowa, Wheeler.

## PENNSYLVANIA.

Section I: Philadelphia.

Section II: Adams, Bedford, Berks, Bucks, Chester, Cumberland, Dauphin, Delaware, Franklin, Fulton, Huntington, Juniata, Lancaster, Lebanon, Lehigh, Mifflin, Monroe, Montgomery, Northampton, Perry, Pike, Snyder, Union, York.

Section III: Carbon, Columbia, Lackawanna, Luzerne, Montour, Northumberland, Schuylkill, Wayne.

Section IV: Beaver, Butler, Greene, Lawrence, Washington.

Section V: Blair, Cambria, Fayette, Somerset, Westmoreland.

City not included in counties, Altoona.

Section VI: Armstrong, Cameron, Clarion, Clearfield, Crawford, Elk, Erie, Forest, Indiana, Jefferson, McKean, Mercer, Potter, Venango, Warren, Wyoming.

Cities not included in counties, Williamsport and New Castle.

Section VII: Allegheny, Bradford, Center, Clinton, Lycoming, Sullivan, Susquehanna, Tioga.

City not included in counties, McKeesport.

## RHODE ISLAND.

Section I: Includes entire State.

## SOUTH CAROLINA.

Section I: Anderson, Cherokee, Greenville, Oconee, Pickens, Spartanburg.

Section II: Abbeville, Aiken, Bamberg, Barnwell, Calhoun, Chester, Edgefield, Fairfield, Greenwood, Kershaw, Lancaster, Laurens, Lexington, McCormick, Newberry, Orangeburg, Richland, Saluda, Union and York.

Section III: Beaufort, Berkley, Charlestown, Chesterfield, Clarendon, Colleton, Darlington, Dillon, Dorchester, Florence, Georgetown, Hampton, Horry, Jasper, Lee, Marion, Marlboro, Sumter, Williamsburg.

## SOUTH DAKOTA.

Section I: Aurora, Beadle, Brookings, Brown, Brule, Buffalo, Butte, Charles Mix, Clark, Clay, Codington, Custer, Davison, Day, Deuel, Douglas, Fall River, Faulk, Grant, Gregory, Hamlin, Hand, Harding, Hyde, Jerauld, Kingsbury, Lake, Lawrence, Lincoln, Lyman, McCook, Marshall, Meade, Miner, Minnehaha, Moody, Pennington, Perkins, Roberts, Sanborn, Spink, Stanley, Union, Yankton.

Section II: Bonhomme, Campbell, Edmunds, Hanson, Hughes, Hutchinson, McPherson, Potter, Sully, Turner, Walworth.

Section III: Armstrong, Bennett, Corson, Dewey, Mellette, Shannon, Todd, Washabaugh, Washington, Ziebach.

## TENNESSEE.

Section I: Crockett, Dyer, Fayette, Gibson, Hardeman, Haywood, Lake, Lauderdale, Madison, Obion, Shelby, Tipton.

Section II: Bedford, Benton, Cannon, Carroll, Cheatham, Chester, Clay, Coffee, Davidson, Decatur, Dekalb, Dickson, Fentress, Franklin, Giles, Grundy, Hardin, Henderson, Henry, Hickman, Houston, Humphreys, Jackson, Lawrence, Lewis, Lincoln, McNairy, Macon, Marshall, Maury, Montgomery, Moore, Overton, Perry, Pickett, Putnam, Robertson, Rutherford, Scott, Smith, Stewart, Sumner, Trousdale, Van Buren, Warren, Wayne, Weakley, White, Williamson, Wilson.

Cities not included in counties, Memphis and Knoxville.

Section III: Anderson, Bledsoe, Blount, Bradley, Campbell, Carter, Claiborne, Cocke, Cumberland, Grainger, Greene, Hamblen, Hamilton, Hancock, Hawkins, James, Jefferson, Johnson, Knox, Loudon, McMinn, Marion, Meigs, Monroe, Morgan, Polk, Rhea, Reane, Sequatchie, Sevier, Sullivan, Unico, Union, Washington.

## TEXAS.

Section I: Atacosa, Bastrop, Bee, Bexar, Brewster, Brooks, Caldwell, Cameron, Comal, Culberson, Dimmit, Duval, El Paso, Frio, Goliad, Guadalupe, Hays, Hidalgo, Hudspeth, Jeff Davis, Jim Hogg, Jim Wells, Karnes, Kinney, Kleberg, La Salle, Live Oak, McMullen, Maverick, Medina, Nueces, Pecos, Presidio, Reeves, San Patricio, Starr, Terrell, Travis, Uvalde, Valverde, Webb, Willacy, Williamson, Wilson, Zapata, Zavalla.

Section II: Anderson, Andrews, Angelina, Archer, Armstrong, Bailey, Bandera, Baylor, Bell, Blanco, Borden, Bosque, Bowie, Briscoe, Brown, Burnet, Callahan, Camp, Carson, Cass, Castro, Cherokee, Childress, Clay, Cochran, Coke, Coleman, Collin, Collingsworth, Comanche, Concho, Cooke, Coryell, Cottle, Crane, Crockett, Crosby, Dallam, Dallas, Dawson, Deaf Smith, Delta, Denton, Dickens, Donley, Eastland, Ector, Edwards, Ellis, Erath, Falls, Fannin, Fisher, Floyd, Foard, Franklin, Freestone, Gaines, Garza, Gillespie, Glasscock, Gray, Grayson, Gregg, Hale, Hall, Hamilton, Hansford, Hardeman, Harrison, Hartley, Haskell, Hemphill, Henderson, Hill, Hockley, Hood, Hopkins, Houston, Howard, Hunt, Hutchinson, Irion, Jack, Jones, Kaufman, Kendall, Kent, Kerr, Kimble, King, Knox, Lamar, Lamb, Lampasas, Lee, Leon, Limestone, Lipscomb, Llano, Loving, Lubbock, Lynn, McCulloch, McLennan, Madison, Marion, Martin, Mason, Menard, Midland, Milam, Mills, Mitchell, Montague, Moore, Morris, Motley, Nacogdoches, Navarro, Nolan, Ochiltree, Oldham, Palo Pinto, Panola, Parker, Farmer, Polk, Potter, Rains, Randall, Reagan, Real, Red River, Roberts, Rockwall, Runnels, Rusk, San Augustine, San Saba, Schleicher, Scurry, Shackelford, Shelby, Sherman, Smith, Somervell, Stephens, Sterling, Stonewall, Sutton, Swisher, Tarrant, Taylor, Terry, Throckmorton, Titus, Tom Green, Trinity, Tyler, Upshur, Upton, Van Zandt, Ward, Wheeler, Wichita, Wilbarger, Winkler, Wise, Wood, Yoakum, Young.

City not included in counties, Houston.

Section III: Austin, Colorado, De Witt, Fayette, Gonzales, Lavaca, Washington.

City not included in counties, Austin.

Section IV: Aransas, Brazoria, Calhoun, Chambers, Galveston, Hardin, Harris, Jackson, Jasper, Jefferson, Liberty, Matagorda, Newton, Orange, Refugio, Sabine, Victoria, Wharton.

Section V: Brazos, Burleson, Ford Bend, Grimes, Montgomery, Robertson, San Jacinto, Walker, Waller.

## UTAH.

Section I: Beaver, Box Elder, Emery, Garfield, Grand, Iron, Juab, Kane, Millard, Piute, San Juan, Sevier, Tooele, Uinta, Washington, Wayne.

Section II: Cache, Davis, Salt Lake, Sanpete, Utah, Weber.

Section III: Carbon, Duchesne, Morgan, Rich, Summit, Wasatch.

## VERMONT.

Section I: Undivided.

## VIRGINIA.

Section I: Accomac, Elizabeth City, Gloucester, Lancaster, Mathews, Middlesex, Norfolk, Northampton, Northumberland, Princess Anne, Warwick, York.

Section II: Amelia, Brunswick, Caroline, Charlotte, Charles City, Chesterfield, Cumberland, Dinwiddie, Essex, Goochland, Greenville, Halifax, Hanover, Henrico, Isle of Wight, James City, King and Queen, King George, King William, Lunenburg, Macklenburg, Nansemond, New Kent, Nottoway, Powhatan, Prince Edward, Prince George, Richmond, Surry, Sussex, Southampton, Westmoreland.

Section III: Albemarle, Alexandria, Amherst, Appomattox, Bedford, Buckingham, Campbell, Culpeper, Fairfax, Fauquier, Fluvanna, Franklin, Greene, Henry, Loudoun, Louisa, Madison, Nelson, Orange, Pittsylvania, Prince William, Rappahannock, Spotsylvania, Stafford.

Section IV: Alleghany, Augusta, Bath, Bland, Botetourt, Buchanan, Carroll, Clarke, Craig, Dickenson, Floyd, Frederick, Giles, Grayson, Highland, Lee, Montgomery, Page, Patrick, Pulaski, Roanoke, Rockbridge, Rockingham, Russell, Scott, Shenadoah, Smythe, Tazewell, Warren, Washington, Wise, Wythe.

## WASHINGTON.

Section I: Adams, Asotin, Benton, Clallam, Clarke, Columbia, Cowlitz, Franklin, Garfield, Grays Harbor, Jefferson, Klickitat, Lewis, Lincoln, Mason, Pacific, Skamania, Spokane, Thurston, Wahkiakum, Walla Walla, Whitman.

Section II: Island, King, Kitsap, Pierce, San Juan, Skagit, Snohomish, Whatcom.

Section III: Chelan, Douglas, Ferry, Grant, Kittitas, Okanogan, Pend Oreille, Stevens, Yakima.

## WEST VIRGINIA.

Section I: Berkeley, Grant, Hampshire, Hardy, Jefferson, Mineral, Morgan, Pendleton, Pocahontas, Preston, Randolph, Tucker.

Section II: Barbour, Boone, Braxton, Brooke, Cabell, Calhoun, Clay, Doddridge, Fayette, Gilmer, Greenbrier, Hancock, Harrison, Jackson, Kanawha, Lewis, Lincoln, Logan, McDowell, Marion, Marshall, Mason, Mercer, Mingo, Monongalia, Monroe, Nicholas, Ohio, Pleasants, Putnam, Raleigh, Ritchie, Roane, Summers, Taylor, Tyler, Upshur, Wayne, Webster, Wetzel, Wirt, Wood, Wyoming.

## WISCONSIN.

Section I: Ashland, Barron, Bayfield, Buffalo, Burnett, Chippewa, Crawford, Douglas, Dunn, Eau Claire, Iron, Jackson, La Crosse, Pepin, Pierce, Polk, Price, Rusk, St. Croix, Sawyer, Taylor, Trempealeau, Vernon, Washburn.

Section II: Adams, Clark, Columbia, Dane, Dodge, Florence, Fond du Lac, Forest, Grant, Green, Green Lake, Iowa, Jefferson, Juneau, Lafayette, Langlade, Lincoln, Marathon, Marinette, Marquette, Monroe, Oconto, Oneida, Outagamie, Portage, Richland, Rock, Sauk, Shawano, Vilas, Walworth, Washington, Waukecha, Wampaca, Waushara, Winnebago, Wood.

City not included in counties, Green Bay.

Section III: Milwaukee.

Section IV: Brown, Calumet, Door, Kenosha, Kewaunee, Manitowoc, Ozaukee, Racine, Sheboygan.

City not included in counties, Superior.

## WYOMING.

Section I: Includes entire State.



## II. THE DISTRIBUTION OF DEFECTS IN THE VARIOUS DIFFERENT SECTIONS IN STATES. (TABLES XXXII, XXXIII.)

1. *Alabama*.—This State was divided into five sections, as shown in figure 5. Of these, section 1 in the north includes an extensive mining and manufacturing area having in 1910 a population of 760,740 with a density per square mile of 49. The white population constituted about 74 per cent of the whole, mostly native whites. Section 2 comprises a part of the black belt with about 71 per cent Negro population. Section 3 comprises two areas without any large cities and a low density—35 per square mile. This contains only 31 per cent Negro population. Section 4 is part of the black belt, which was examined at Camp Pike and includes about 73 per cent Negroes. Section 5 is largely urban and suburban, having the city of Mobile in its environs. This contains about 43 per cent Negro population. Comparing the rate of incidence of certain leading diseases in these different sections, we find that the rate for pulmonary tuberculosis is highest in section 3 with its large native white population and lowest in section 2, which has 71 per cent Negro blood. This would indicate that a smaller proportion of Negroes showed tuberculosis at the time of examination than the whites, which is possibly due to the fact that tuberculosis runs a much more rapid course in the Negroes than in the whites, so that a smaller proportion of them would be found to be affected on any particular day, or that pure-blooded Negroes suffer less from tuberculosis than the hybrid Negroes of the white section. On the other hand, the proportion of registrants found with venereal disease is higher in sections 2 and 4 of the black belt than in the other sections. In fact, the amount of syphilis in section 2 of the black belt is nearly three times as great as in section 3, which contains only 31 per cent colored.

The amount of mental deficiency is highest in section 4, of the black belt, being 36 per 1,000, and lowest in section 5, Mobile in its environs. In defective vision there is least found in section 2, of the black belt (15.9 per 1,000), and most in section 5 (20.4 per 1,000). Otitis media is low in section 2 but high in section 4 (both parts of the black belt). The white sections have an intermediate ratio. With this is correlated the low amount of defective hearing in section 2 and the maximum of defect in section 4. Of hypertrophic tonsillitis the largest amount was found in section 4 and the smallest amount in section 2, despite the fact that both are parts of the colored belt. In mitral insufficiency both the colored sections stand low, only about one-half as much as in Mobile and its environs. The same is true of unclassified valvular lesions in the case of section 4, although there was an abnormally large number of cases of this defect found in section 2. The proportion of tachycardia found in sections 2 and 4 was rather small, strikingly less than the proportion found in section 3. Of defective and deficient teeth there was least found in section 1, in the up-country. The amount in sections 2 and 4 is about average; the proportion of section 5 is much greater (14.7 per 1,000). The amount of hernia in the colored belt is about the same as, or somewhat greater than, the average for the whole State; but there is less than the average of enlarged inguinal rings. The colored people showed a larger proportion of malunion of fracture than the white people, probably because of insufficient surgical attention. Of flat

foot, sections 2 and 4 give ratios respectively greater than, and decidedly less than, the average for the State. The curious differences in the proportions of defects found in the two adjacent black sections is probably largely due to the fact that registrants from section 2 were examined at Camp Gordon and registrants from section 4 at Camp Pike.

2. *Arizona*.—This desert State of the Southwest has become largely populated by white persons from farther east who are affected by incipient lung tuberculosis. In addition, it contains a large proportion of Indians, Mexicans, and foreign-born whites. The urban population is small. The State is divided into two sections: Section 1 is in the north. It has a population of less than 1 per square mile. Of this population about 37 per cent is Indian and 8 per cent Mexican. Section 2 is prevailingly white (43 per cent), in 1910, being of native white parents. The proportion of Indians is less than 7 per cent, of Mexicans about 8 per cent.

The outstanding fact in both sections of Arizona is the high proportion of tuberculosis found among the registrants. This amounted to 85 per 1,000 for the southern section and 38 per 1,000 for the northern section, whereas the average for the whole country is between 11 and 26 per 1,000, according to the method of calculation. The table shows that there is a much larger proportion of lung defects in the southern section (which includes the city of Tucson) than in the northern section. The rate for venereal disease is relatively low, being 16 per 1,000 in one section and 26 in another as contrasted with about 40 per 1,000 in the United States at large. The section with the larger per cent of Indians (36.6 per cent) has the smaller amount of venereal disease. The mental deficiency rate is 3.38 and 2.94 per 1,000, respectively, as contrasted with 17.14 per 1,000 for the whole population of the United States. This gives a low rate for these sections—somewhat higher for the Indian than the white section. Of defective vision, cause not stated, the ratios are 15 and 12 per 1,000, respectively, as contrasted with between 17 and 30 for the whole population of the United States at large. Thus these ratios are low, being somewhat higher for the Indian than the white section. Amaurosis is found in the Indian section with a ratio of 7 per 1,000, whereas none at all is recorded from section 2. Thus the Indian section of Arizona is highly exceptional in its rate of this form of blindness. Hypertrophic tonsillitis occurs at a rate of about 19 per 1,000, as contrasted with about 24 per 1,000 for the population at large. Valvular diseases of the heart are about 28 per 1,000 in either section, as contrasted with about 33 per 1,000 for the population at large. The rate is somewhat greater for section 2 than it is for section 1. Defective and deficient teeth are low, being 4 per 1,000 for Indian section and 3 for the prevailingly white section, as contrasted with 13.5 per 1,000 for the population at large. On the other hand, hernia and enlarged inguinal rings are relatively common, being about 45 per 1,000 altogether for either section, as contrasted with 33 to 39 per 1,000 for the population at large. This suggests that the population of Arizona may be of exceptionally high stature. Malunion of fractures are relatively higher in the Indian section than in the other section, and as contrasted with the population as a whole. Also loss of both upper and lower extremity are commoner in the Indian section than in the other. On the other hand, the Indian sec-

tion has much less hammertoe, hallux valgus, pes cavus, and pes planus. This is doubtless because of the better treatment of the foot in the relatively shoeless or moccasined Indians.

The following defects are commoner in the northern section: Loss of foot and deformities due to injuries of hand; defective physical development. Deformities of the upper and lower extremity due to causes other than accident are, however, commoner in the southern section.

3. *Arkansas*.—The prevailingly rural State of Arkansas is divided into three sections. Section 1 contains principally negroes of the Mississippi bottoms. Here negroes constitute 55 per cent of the whole population. Section 2 is almost entirely native whites of native parents. Such whites constitute about 97 per cent of all who live in the hill country. Section 3 comprises a more thickly populated area, about 84 per cent native whites and 12 per cent negroes, being somewhat intermediate in its character between sections 1 and 2.

In respect to pulmonary tuberculosis section 1 stands in a class by itself, having nearly twice as much as either of the other sections. This is perhaps to be expected in view of the heavy incidence of tuberculosis among colored people, as contrasted with full-blooded negroes. The rate for syphilis is 22 per 1,000 in the negro section and 3.5 and 8.4, respectively, in the two white sections. Gonococcus infection is over four times as common in section 1 as section 2. Curvature of the spine is less common in section 1 than the rest of the State. Likewise benign tumors.

The following diseases and defects were found much more frequent in section 1 (negro section) than in section 2 (white section). Arthritis (possible sequence of gonorrhoea infection), monoplegia, blindness in one eye, blindness in both eyes, otitis media, mitral stenosis, diseases of the lymphatic system, asthma, defective and deficient teeth, hernia (27 per 1,000, as contrasted with 12 per 1,000), diseases of urethra, hydrocele, nonvenereal diseases of the genitourinary system, painful cicatrices, loss of whole or part of upper extremity, also of lower extremity, hammertoe, hallux valgus, pes planus, loss of part of foot, deformities of hand resulting from injury or infection, and general unfitness for military service. These differences in which the negro section in Arkansas show an excess over the white sections of the same State are mostly the results of mechanical accidents or of venereal infection. A few, like otitis media, are dependent upon focal infections perhaps associated with the extensive decay and deficiency of the teeth.

On the other hand, the following defects are less common in section 1 than section 2: Hemiplegia and apoplexy, mental deficiency; manic-depressive psychosis, astigmatism, hyperopia, myopia, defective vision; cause not stated, also trachoma and other forms of conjunctivitis, amaurosis, enucleation of the eye, defective hearing, diseases of the pharynx other than tonsillitis, varicocele, tachycardia, shortening of lower extremity, bony ankylosis of joint, pes cavus, pronated foot, atrophy of appendicular muscles, deficient chest measurement, underweight, and malnutrition. Thus, in defects of the eye and in other bodily defects not due to infections the prevailingly Negro population of section 1 seems on the whole better fit than the white population of section 2.



4. *California*.—The State of California is divided into five sections, of which sections 4 and 5 include the cities of Los Angeles and San Francisco, respectively. Section 1 includes the great agricultural area of the central and coastal territory; section 2 includes the mining area of the western tier of the Sierras, and section 3 includes the sparsely populated, mostly desert, region of San Bernardino and adjacent counties. Except for the San Francisco area these areas averaged about 50 per cent native white of native parents. San Francisco contained about 28 native whites of native parents, 387 foreign born or of foreign parents, and nearly 4 per cent Chinese and Japanese. Sections 1, 2, and 3 may be spoken of as rural, 4 and 5 as urban, California.

Pulmonary tuberculosis is exceptionally high in all sections of California, being two or three times as common as in the country as a whole. The highest rate (58 per 1,000) is found in the desert section, the lowest (33 per 1,000) in the mining section. This large amount of pulmonary tuberculosis in California is, of course, due to the fact that many persons with the disease have migrated there and possibly to the fact that in some cases their parents did so. Tuberculosis of other organs than lungs is one-third more common than in the whole United States.

The venereal diseases are higher in the two urban sections than in rural California. They are not especially high in the mining districts. Arthritis is less common in the urban than in the rural districts, even than in section 3. Exophthalmic goiter is most common in the desert section, but simple goiter is commonest in the mining section. The same thing is true of obesity. Epilepsy is commoner in the rural than urban districts and reaches its maximum in the mountainous mining section. Mental deficiency is much commoner in the urban districts, and it is especially common in section 2. Defective vision is slightly commoner in the urban districts than in the more rural districts. Trachoma reaches a ratio of 3.3 per 1,000 in section 2 and only 1.7 in the desert section, section 3. Elsewhere it is less than 1 per 1,000. Blindness in one eye is commonest in the mining section. Hypertrophic tonsillitis is far more common in the desert and tuberculosis district than the two urban sections (sections 4 and 5). Mitral insufficiency is commonest in the desert region. The mountainous region has least of it and, indeed, of all valvular diseases unclassified. Tachycardia is much commoner (20 per 1,000) in the desert region than in the urban and rural regions. The same thing is true of asthma; but, on the other hand, defective and deficient teeth are less common here than in the other sections. Hernia and enlarged inguinal rings are least common in section 3. The same thing is true of malunion of fracture of lower extremity, ankylosis, hammertoe, hallux valgus, flat foot, pronated foot, and foot deformities of any type, depressed skull, deformities of hand. On the whole, section 3 impresses one as comprising a population which while (perhaps because) heavily tubercular has been well protected from ordinary accidents and bad treatment of the feet. On the other hand, the mountainous section (section 2) shows the highest per cent of bony ankylosis of the joint, loss of leg, malunion of fracture of lower extremity, and loss of one or more fingers. This is a population which on account of occupation has suffered many accidents, especially to the lower extremities.

5. *Colorado*.—This mountainous State has been divided into six sections, of which one (section 6) comprises the city of Denver. Section 1, in the west, has a large native white population—74 per cent. It is the most sparsely populated section of the State. Section 2 is only 64 per cent native white of native parents and contains over 8 per cent of Russians. Section 3, in the center of the State, is in the heart of the mining district, and comprises only 54 per cent native whites of native parents. There is here an English population, chiefly of miners, of about 6 per cent. Section 4 includes the eastern part of the State, which, through irrigation, has become prevailingly agricultural. This comprises about 70 per cent native whites of native parents. Section 4 and, even to a greater extent, section 5 contain a large number of persons who have migrated from the East because of pulmonary tuberculosis and are able to live only in this high and dry climate.

Pulmonary tuberculosis was found in 122 per 1,000 men examined from section 5—Denver and environs. About 50 per 1,000 of the drafted men from section 4 and about the same proportion in section 3 were found to have pulmonary tuberculosis. In the western part of the State there was relatively less of it. Venereal disease was relatively uncommon, especially in the western and eastern agricultural districts. There was more of it in section 2, in the northern part of the State, in section 6, and in the mining region of section 3. Curvature of the spine is relatively common in the mountainous area of section 3, and exophthalmic goiter here reaches a maximum in the State of 5.9 per 1,000. Simple goiter, on the other hand, is commoner in section 6. Mental deficiency is most common in section 1, prevailingly native whites. Defective vision reaches a maximum in Denver and is least common in section 1. Blindness in one eye is commonest in the south mountain territory (section 6), while otitis media is most common in the Denver section. Valvular diseases of the heart and cardiac hypertrophy are relatively most frequent in sections 5 and 6. Varicose veins are found more in Denver than in any other part of the State. A great deal of asthma was found in Denver. Defective and deficient teeth reached a maximum in section 6, while hernia and enlarged inguinal rings are commonest in section 2. Of foot defects, hallux valgus is commonest in the eastern part of section 4, even more so than in the city of Denver. Flat foot was found prevailingly in the northern part of the State (section 2), and the same district shows an excess of deformity of the lower extremities and deformities of the hand, due to injury.

Altogether, section 2 seems to be a region of marked physical defect, rather more so than section 3, in the center of the State.

6. *Connecticut*.—This is one of the smallest and most densely populated of the States. Settled originally by English agricultural stock which had immigrated in from Massachusetts Bay, it has in the last half century developed into a great manufacturing State and attracted hundreds of thousands of recent immigrants. The whole State is divided into a prevailingly agricultural and suburban section (No. 1), with an average population of 115 persons per square mile, while the manufacturing area (section 2) has an average of 537 persons per square mile. The latter includes 96 per cent urban population and 32 per 1,000 foreign-born whites. Among the recent immi-

grants, the Irish were, in 1910, commoner than any other European race.

Pulmonary tuberculosis is rather commoner in Connecticut than most of the Eastern States, having a proportion of 25 per 1,000 with tuberculosis. Venereal diseases are relatively uncommon, about one-third as common as in the population of the United States as a whole. Exophthalmic goiter occurs in about 1.5 persons per 1,000 and simple goiter in less than 1 per cent. They are thus, comparatively, rare diseases in the State of Connecticut. Mental deficiency was found twice as commonly in the more rural section as in the more urban section, but dementia precox is less commonly found there. Defective vision was found more commonly in the manufacturing area, and otitis media and defective hearing are also more abundant there. Valvular diseases of the heart are commoner in the rural section. Defective and deficient teeth are about 50 per cent commoner in the agricultural and suburban than in the manufacturing section, despite the fact that there is a larger proportion of Irish in the latter section. Hernia is slightly greater in section 1 and enlarged inguinal rings in section 2. The sum of the two conditions is about the same in the two sections in this State. Mechanical defects, especially loss of appendages by accident, are commoner in the rural districts, but hallux valgus is much commoner in the cities than in the rural districts. Finally, there was more of underweight as well as of underheight found in the rural districts. Cryptorchidism was 15 per cent commoner there.

7. *Delaware.*—The State of Delaware, comprising 202,000 inhabitants in 1910, of which 48 per cent is urban population, was not divided. About 63 per cent are native whites of native parents and 13 per cent are native whites of foreign-born parents. About 15 per cent are negroes. The position of Delaware in respect to the different diseases is sufficiently brought out in the Tables 1 to 78 and the associated graphs.

8. *District of Columbia.*—This District being exclusively urban, is not divided, and its position is indicated in respect to the different diseases and defects in the tables and graphs 1-78.

9. *Florida.*—This, the most southern State of the Union, constitutes for the most part a peninsula whose rapid development in population has been rather recent. It is divided into four sections, of which the first comprises a fairly large proportion of whites (about 60 per cent); section 2 comprises nearly 60 per cent negroes; section 3 includes Key West and the adjacent mainland, comprising the largest proportion of the West Indians in continental United States, about 9 per cent. Finally, section 4 comprises the rest of the peninsula, made up of a mixture of negro and white population. The population of section 3 is relatively small, only 21,000, and the total number of registrants from this section is 289. This section is, however, characterized by an extraordinary amount of pulmonary tuberculosis (60 per 1,000), three or four times the rate for the United States as a whole, and exceeded only by Arizona, New Mexico, and Colorado. Florida has the highest proportion of total venereal diseases of any State of the Union, being 110 per 1,000 men examined. The State stands first in gonococcus infection and second in syphilis and chancroid. The greatest amount of this disease is located in section 2, with its prevailing negro rural population.



The rate here rises to 118 persons found infected out of every 1,000 men examined. Very few cases of these diseases were found in section 3 (Key West and environs). In exophthalmic and simple goiter, the State of Florida stands at or near the bottom of the list, only 6 cases of simple goiter being found, or twenty-five one-hundredths per 1,000 men examined. No goiter was found in section 3.

In mental deficiency Florida occupies a median position, with about 13 mental defectives recorded per 1,000 men. Of all sections, that comprising the highest proportion of negroes, section 2, predominates in its ratio of mental deficiency. Defective hearing is not very common in the State, although nearly 10 per 1,000 of the men examined from section 3 have defective hearing (Key West section). In respect to hypertrophic tonsillitis, Florida occupies a rather low position in the list of States. This disease is found most frequently in section 1 (18 per 1,000) and least in section 3 (Key West). An average amount of valvular diseases of the heart was found in Florida, but there was a slight excess of myocarditis and myocardial insufficiency. Especially in section 3 was there an extraordinarily high rate in this respect, though the numbers were small. Of defective and deficient teeth, Florida has more than the average. The population of Key West has almost as large a percentage of defective teeth as that of New England. The ratio for flat feet is slightly above the average. There is more of it in section 1 than in any other section, and remarkably little (6 per 1,000) in section 3. Underweight was found especially common in the Cubans of the Key West section.

10. *Georgia*.—The State of Georgia is divided into two sections: First, a piece of the black belt, comprising one and one-fourth million inhabitants, or about 61 per cent of the State population, is negro. The remainder is a mixed population, in which native whites predominate and the negroes constitute only about 30 per cent. In each section the density is about 44 inhabitants per square mile. The present study, then, affords a means of contrasting two similar areas which differ, however, in that one has double the amount of negro population of the other.

In respect to tuberculosis, we find that the negro area has only about half of the white area. On the other hand, of the venereal diseases, it has almost double. Curvature of the spine is commoner among the negroes, as also are the following diseases and defects:

Mental deficiency, blindness in one eye, defective hearing, diseases of the lymphatic system, bronchitis, defective and deficient teeth, hernia, nonvenereal diseases of the genito-urinary system, painful cicatrices, shortening of the lower extremity, hallux valgus, pronated foot, loss of part of foot, deformity of lower extremity, underweight, and bullet and other recent wounds.

The following diseases and defects are less common in section 2 (white area) than in section 1. Defective speech, deaf and dumb, constitutional psychopathic states, dementia precox, psychoses, errors of refraction, strabismus, cataract, amblyopia, choroiditis, otitis media, perforated ear drum, hypertrophic tonsillitis, mitral insufficiency, but not common valvular diseases of the heart on the whole, hemorrhoids, varicocele, tachycardia, enlargement of inguinal rings, nephritis, other diseases of the kidney and annexa, diseases of the bladder, loss

of whole or part of extremity, ankylosis of joint, flat foot, loss of one or more fingers, and general unfitness for military service.

Thus, on the whole, the colored population showed a smaller proportion of many categories of defects than did that of the whites.

11. *Idaho*.—This State being undivided, its rank in respect to the different diseases and defects can be secured by consulting Table 1-76 and the corresponding graphs.

12. *Illinois*.—The northern part of this State, comprising sections 1, 2, 7, and 8, was examined at Camp Dodge, whereas men from the southern part of the State were examined at Camp Taylor. The State is divided into eight sections, of which section 1 comprises the suburban region surrounding Chicago. Chicago itself is contained in section 5. Section 2 contains a mixed native and white foreign population. About 52 per cent of the whites are born of native parents and 30 per cent of foreign parents. Section 3 includes the great agricultural area in southern Illinois, about 80 per cent of which are native whites and native parents. Section 4 in the southern half of the State includes largely a German population in the suburbs of St. Louis. This section contains 17.4 per cent German born. Section 6 includes the territory known as "Egypt" characterized by 30 per cent Negroes. This comprises, however, only 52,000 inhabitants who were taken out of section 3 in order to leave it almost a purely white agricultural area. Section 7, the northern agricultural area, is prevailingly occupied by urban whites. Section 8, the northern tier of counties, includes a mixture of agricultural and manufacturing areas with many Germans and Scandinavians; about 54 per cent of the population are native-born whites.

The outstanding fact in the distribution of pulmonary tuberculosis in these sections is its predominance in section 6 with its large proportion of Negroes. The rate rises to 37.4 per cent, whereas in other parts of the State it does not rise above 21.7 per cent (city of Chicago). This illustrates the relatively heavy incidence of tuberculosis among Negroes who are brought in close contact with a prevailingly white population. Likewise in venereal diseases the rate for "Egypt" is about ten times the rates for the State as a whole and for gonococcus infection about three and a half times. Indeed, the rate of 142 per 1,000 is higher than any State and constitutes one of the highest ratios found in any section. On the other hand, the mixed agricultural and manufacturing section (section 8) has the smallest per cent of these diseases of any section of the State. Curvature of the spine is most frequent in the sections surrounding Chicago (8 per 1,000), whereas it is least common in the prevailingly German section around St. Louis (2.6 per 1,000). Arthritis is commonest in "Egypt" and least common in the great agricultural section 3. Exophthalmic goiter was commonest in section 5, Chicago, and no cases were recorded from "Egypt." In general, the percentage of exophthalmic goiter found was decreased to the distance of the section from Lake Michigan. Much the same is true of simple goiter, although in this case the ratio is lowest in the German section east of St. Louis. Obesity was commonest in the northernmost section of the State and least common in "Egypt" and section 4. Alcoholism reaches its maximum in the section which includes Chicago. Of the minor paralyses there are fewest in the "Egypt"

section and most in section 8. Epilepsy is commonest in "Egypt" section and least common in the agricultural section No. 2 along the Illinois River. Of mental deficiency the highest rate was found in the "Egypt" section and the next highest in section 8. The lowest rate is in the city of Chicago, and, outside of that, in the prosperous valley of the Illinois River. Myopia was commonest in Chicago and next in the surrounding counties. It was least common in the manufacturing and agricultural territory of section 8. Of other types of defective vision, or of "defective vision (cause not stated)," the largest proportion is found in Chicago and least in section 2. Trachoma is found in slight degree in most of the sections, but nearly 1 per cent of the men examined from "Egypt" showed the disease and there was a good deal of it found in other parts of the southern half of the State. It diminished as the latitude increased. Blindness in one or both eyes was commonest in the counties surrounding Chicago, and next commonest in the southern half of the State. There was least of it found along the Illinois River. Of otitis media the largest amount was found in Chicago and in "Egypt." The smallest amount was found in the agricultural districts of the interior of the State.

Defective hearing is most common in Chicago and environs along the northern part of the State. It reaches its minimum in "Egypt."

The maximum of tonsillitis is found in the southern agricultural district, section 4, and also section 6. There is least of it in the northern tier of counties.

Mitral insufficiency was detected most frequently in Chicago (possibly because of the better-trained examiners there.) Least of it was found in "Egypt."

Of cardiac hypertrophy, the largest proportion was found in the northern tiers of counties and least of it in the section east of St. Louis. There was slightly more of all heart defects found in section 7 than in section 3. These two sections are contiguous and both agricultural. Moreover, the rate of rejection in the camp to which section 7 was tributary, Camp Dodge, is less than that to which section 3 is tributary, Camp Taylor. This suggests a real difference in the incidence of valvular diseases of the heart in these two sections. The principal difference is that section 3 contains a larger percentage of native whites of native parents than does section 7. Section 7 contains much more goiter than section 3 and this doubtless has its influence on the functional heart disorders and even on some organic disorders due to hyperactivity.

Varicocele and varicose veins are commonest in the northern tiers of counties which contain a large Scandinavian and German population. They are less common in "Egypt."

Tachycardia is commonest in Chicago where goiter is most common, and there was least of it found in the territory along the Illinois River and immediately south of it.

The distribution of asthma is somewhat irregular. There was a larger proportion of it found in "Egypt" than in any other section, and least of it in sections 4 and 5.

Of defective and deficient teeth, the largest proportion was found in Chicago and, next, in the suburban counties adjacent to it. The smallest percentage of these defects was found in section 4.



Of hernia, the highest proportion was found in the northern tiers of counties and the smallest in Chicago and the adjacent suburban counties.

Of enlarged inguinal rings, the greatest amount is found in the northern tier counties and the smallest amount in section 7.

Of malunion of fractures in the upper extremity, the largest amount is found in the northern tier of counties, and the next largest in "Egypt," whereas the least is found in the environs of Chicago. Of malunions in the lower extremity the greatest amount is found along the Illinois River and the smallest amount in Chicago. It appears, then, that there is the smallest amount of malunion of fracture in the inhabitants of Chicago, probably on account of better surgical attention given in that city to fractures. Loss of extremities was found most commonly in "Egypt" and least along the Illinois River Valley.

Ankylosis was commonest in "Egypt" and least common in section 4, east of St. Louis.

Of flat foot, the highest rate is found in Chicago and the lowest rate in the southern white agricultural section. In fact, in all foot defects the recruits from Chicago showed an excess. Deformities of the hand and loss of fingers were commonest in "Egypt" and least common in section 7.

Defective physical development was relatively commonest in "Egypt" and least common in section 4. Relatively more persons were excluded for insufficient weight from Chicago than from any other section and relatively fewest from "Egypt." Also relatively more persons were found underheight in Chicago than any other section, and relatively fewest in the great southern white agricultural districts. The reason for the exclusion of so many from Chicago of insufficient weight and height is because of the numerous representatives of the smaller European races in that city. For example, nearly 20 per cent are Russians, Poles, and Austrians—mostly Jews.

Cryptorchidism was commonest along the Illinois River and relatively little of it was found in "Egypt."

Of general unfitness for military service not otherwise specified, the largest proportion comes from the northern tier of counties and the smallest from the environs of Chicago.

Thus, it appears that rejects from Chicago were largely on account of bad feet; that the territory adjacent to Chicago was one of the best of the State from a military point of view; that the Illinois River Valley contains an excellent military population; that in "Egypt" many diseases were found, but that the population is of an exceptionally good stature and weight.

13. *Indiana*.—This prevailingly agricultural State is divided into three sections—the northernmost, including somewhat less than 300,000 inhabitants; is adjacent to Lake Michigan and contains many manufacturing towns. Section 2 lies in the northeastern part of the State and has a considerable population of recent immigrants, whereas the rest of the State is prevailingly agricultural and contains about 83 native whites of native parents.

Comparing these sections with reference to the distribution of the leading defects and diseases, we find that of pulmonary tuberculosis there is the greatest amount in section 2 and least in section 1.

Of venereal disease, on the other hand, there is most in section 1 and least in section 2.

In the case of epilepsy, section 2 has double the amount of section 1, and the same thing is true of mental deficiency, as dementia precox.

Of defective vision, much more is found in section 2 than section 1. The same thing is true of total blindness in one or both eyes, of otitis media, and of defective hearing.

In the case of most heart lesions, section 2 has double the rate of section 1, and section 3 occupies an intermediate position. In fact, one may conclude that the manufacturing towns of Indiana contain the best part of the population from a military point of view, except in the matter of feet. Here, again, the city life tends to the wearing of tight shoes and the breaking down of the arches.

14. *Iowa*.—The great agricultural State of Iowa is divided into two sections, the northern section, which contains about 50 per cent foreign-born whites or native whites of foreign parents, and the southern section containing about 73 per cent native whites. The foreign blood in the northern section is largely German and Scandinavian. These two sections may be briefly contrasted. The southern section contains an excess of tuberculosis, venereal disease, curvature of the spine, arthritis, epilepsy, neurasthenia, and other nervous diseases, deafness and deaf-mutism, deformities of the spine, mental deficiency, dementia precox, and manic-depressive psychosis, astigmatism, myopia, cataract, trachoma, varicocele, tachycardia, hydrocele, malunion of fracture, loss of part or whole of extremities, fibrous ankylosis of joint, flat foot, deformities of hand, deformity of extremities, and general unfitness for military service.

On the other hand, the northern section contains an excess of simple and exophthalmic goiter, obesity, monoplegia, strabismus, blindness in one eye, enucleation of the eye, otitis media, perforated eardrum and defective hearing, hypertrophic tonsillitis, and most types of organic and functional heart disorders, varicose veins, asthma, defective and deficient teeth, hernia, bony ankylosis of joint, hammer-toe and hallux valgus, and loss of one or more fingers.

The total defects found in section 2 is 512 per 1,000, as contrasted with 501 per 1,000 in section 1. On the whole, the section containing the larger proportion of native born of native parents showed a slightly greater defect rate.

15. *Kansas*.—Kansas is a State with practically no large cities. It is divided into two sections; a western section below the Arkansas River, which contains a large percentage of Russian-Menonites (about 13 per cent), and an eastern section, naturally a better irrigated section, which contains about 73 per cent native-born whites of native parentage. The eastern section shows an excess of pulmonary tuberculosis and of venereal diseases, curvature of the spine, arthritis, epilepsy, deafness and deaf-mutism, mental deficiency, and most of the psychoses, myopia, trachoma, blindness in one or both eyes, defective hearing, hypertrophic tonsillitis, varicose veins, defective and deficient teeth, malunion of fractures, loss of extremities, bony ankylosis of joint, hallux valgus, deformity of the foot and of hand, loss of fingers, deformities of extremities and of chest, atrophy of muscles of the lower extremity, underweight, underheight, and cryptorchidism.

On the other hand, an excess of the following defects was found in the western section: Exophthalmic and simple goiter, cataract, otitis media, most heart lesions and functional heart disorders, asthma, flat foot, and general unfitness for military service.

The defect rate in the eastern section is 428 per 1,000, whereas that of the western section is 373 per 1,000. The larger proportion of the flood of recent immigrants has not diminished the military efficiency of population.

16. *Kentucky*.—This prevailingly rural State was divided into two sections—an eastern section, including the mountainous area and containing a population about 97 per cent native whites of native parentage. The central and western section, No. 2, contains about 76 per cent native whites of native parentage and 14 per cent Negro blood. The two sections may be briefly contrasted.

The plains section showed an excess over the mountainous section in the following defects: Pulmonary tuberculosis, venereal diseases, curvature of the spine, obesity, defective speech, deafness, dementia precox, manic-depressive psychosis and other psychoses, most forms of defective vision, blindness in one or both eyes, otitis media and defective hearing, hypertrophic tonsillitis, mitral insufficiency, and most other forms of heart lesions and functional heart disorders, varicocele, defective and deficient teeth, hernia, various nonvenereal diseases of the genito-urinary system, loss of lower extremity, hallux valgus, pes planus and other foot defects due to ill-fitting shoes, atrophy of the appendicular muscles, underweight, cryptorchidism, and general unfitness for military service.

On the other hand, the mountainous section showed an excess of simple goiter, epilepsy, deaf-mutism, mental deficiency, myopia, strabismus, cataract, trachoma, enucleation of the eye, varicose veins, scars, malunion of fracture, loss of extremities and ankylosis of joints, loss or deformity of feet, deformities or injuries to hand and skull, flat foot, deformities of extremities and of chest, defective physical development, and defective chest measurement.

On the whole, the plains section yields a defect rate of 462 per 1,000, and that of the mountainous, 431 per 1,000. Thus the mountainous population shows itself remarkably free from physical defects, excepting those due to injury and trachoma.

17. *Louisiana*.—This low-lying agricultural State, through which runs the Mississippi River and its river bottoms, is divided into three sections. Section 2 contains the city of New Orleans. Section 1 includes the Mississippi bottoms, outside of New Orleans and some of the upland in the northwestern corner of the State, together with St. Marys County, having, altogether, about 63 per cent Negro population. Section 3 includes the remainder of the State, with a Negro population of about 34 per cent. These sections may be briefly contrasted in respect to the diseases and defects found.

Tuberculosis is commonest in New Orleans and next in the Negro section. Venereal diseases are commonest in the rural Negro section. For the rest, the defects that are commonest in New Orleans are simple and exophthalmic goiter, defective vision, and strabismus, cataract, blindness in both eyes, otitis media, and perforated ear drum, defective hearing, hypertrophic tonsillitis, various valvular diseases of the heart, asthma, defective and deficient teeth, hernia, and en-



larged inguinal rings, loss of lower extremity, hammertoe, hallux valgus, flat foot, and other foot defects, defective physical development, deficient chest measurement, underweight, and underheight.

The following defects are commoner in the Negro section: Pulmonary tuberculosis is commoner than in the white section, but not so common as in New Orleans; venereal diseases exceed those of any other section; also arthritis, amblyopia, choroiditis, hydrocele, other nonvenereal diseases of the genito-urinary system, fibrous ankylosis of joint, loss of one or more fingers.

An excessive proportion of the following defects was found in section 3, prevailingly rural whites: Curvature of the spine, epilepsy, mental deficiency, trachoma, enucleation of the eye, and blindness in one eye, tachycardia and other functional heart disorders, malunion of fracture of lower extremity, shortening of lower extremity, loss of whole or part of upper extremity, deformities of hand resulting from injury or infection, deformities of upper and lower extremity, cryptorchidism, and general unfitness for military service.

In sum, there was a large proportion of defects found in the city of New Orleans (627 per 1,000) men examined, next in the rural white section (502 per 1,000), and least in the negro section (496 per 1,000).

18. *Maine*.—The prevailingly rural State of Maine is divided into three sections. The northeastern section includes an area that is largely woody and comprises 15 per cent or more Canadians of English stock. Section 2 is largely maritime and comprises 86 per cent of native whites of native parents. Section 3 includes the western half of the State, in which there are 12½ per cent Canadian population. This section contains the only important cities in the State. The three sections may be briefly named eastern, maritime, and western sections.

Tuberculosis is commonest in the maritime section and least so in the western section. Venereal diseases have a low rate in all sections, but greatest in the maritime and least in the western section. Of other diseases there is an excess in the eastern section, as follows: Exophthalmic goiter, epilepsy, blindness in one or both eyes, otitis media and defective hearing, tachycardia, malunion of fracture, loss of lower extremity, ankylosis, hallux valgus, hammertoe, pes cavus, flat foot, deformities of upper and lower extremity, cryptorchidism, and general unfitness for military service. This section, however, contains the smallest amount of organic heart disease and of underweight and underheight.

The maritime section shows an excess in the following defects: Dental deficiency, manic-depressive psychosis, enucleation of the eye, myocarditis, asthma, defective and deficient teeth, hydrocele, and otitis media. There is the least amount of defective hearing in this section.

The western section contains an excess of curvature of the spine, arthritis, obesity, the minor paralyses, defective speech, psychoses not especially named, astigmatism, myopia and other types of defective vision, hypertrophic tonsillitis, mitral insufficiency and unclassified valvular lesions, varicose veins, bronchitis, hernia and enlarged inguinal rings, flat foot, pronated foot, loss of one or more fingers, metatarsalgia, underweight, and underheight. It has the least amount of mental deficiency.

On the whole, the defect rate is highest in section 3 (771 per 1,000), probably largely due to the insufficient weight and height of the French Canadians and the foot defects of the city dwellers. Section 1 comes next with its excess of mechanical defects, associated in part with the lumber industry; and the maritime section stands lowest with a ratio of 574 per 1,000, despite the excessive mental deficiency, nervous defects, and certain other defects, in part to be accounted for by the large amount of inbreeding which occurs in this maritime section.

19. *Maryland*.—This largely maritime and agricultural State is divided into four sections. The first includes the city of Baltimore. Section 2 includes the peninsular area lying east of Chesapeake Bay. Section 3 includes the greater part of the remainder of the State pre-vaillingly rural white, and section 4 comprises Charles, St. Marys, and Calvert Counties, with a negro population of 48 per cent. The total population of section 4 amounted only to 43,000 and has been left out of count in the final tabulation. We will compare the defects found in Baltimore, the eastern or peninsular, and the western sections.

Pulmonary tuberculosis is commonest in Baltimore, and the same thing is true of total venereal diseases.

Baltimore County has an excess of the following defects: Obesity, myopia and defective vision (cause not stated), otitis media, perforated ear drum, defective hearing, aortic insufficiency, mitral insufficiency. However, these excesses in cardiac disorders are more than compensated for by the small number of unclassified valvular lesions recorded, due to the better classification made in this city of such lesions. Adding together all the valvular diseases of the heart, Baltimore County shows the fewest. Other defects in which Baltimore shows an excess over the other sections are: Varicocele, varicose veins, hernia, contracture of muscle, fascia, tendon, and sheath, flat foot and pronated foot, metatarsalgia deformity of the extremities, under-height, and cryptorchidism.

Baltimore County showed the lowest defect rate in mental deficiency, blindness in one eye, hypertrophic tonsillitis, loss of upper extremity, ankylosis of joints and loss of fingers. It showed the smallest amount of myopia, defective vision (cause not stated), deficient teeth, hernia, loss of lower extremity, hallux valgus, and metatarsalgia of any of the sections.

In section 3 (western rural section) the largest amount of the following defects was found: Arthritis, simple and exophthalmic goiter, epilepsy, hypertrophic tonsillitis, defective and deficient teeth, enlarged inguinal rings, bony ankylosis of joints and hallux valgus. This section showed the least amount of otitis media and perforated eardrum, varicocele and varicose veins, tachycardia, and flat foot.

20. *Massachusetts*.—This prevaillingly urban State was divided into four sections. Section 1 includes the mountainous district in the western part of the State, section 2 the manufacturing area of the central and eastern part of the State, section 3 the peninsular region of Cape Cod and its base, and section 4, Boston and surrounding cities and towns. These may be briefly called mountainous, manufacturing, maritime, and Boston.

The distribution of the main defects in these four sections is as follows: In all, the rate for pulmonary tuberculosis is high; highest in Boston section, lowest in the mountain section. Venereal diseases

are highest in Boston and lowest in the maritime section. The mountainous section shows an excess of obesity, disease or deformity of the spine (totals not given), mental deficiency, strabismus, defective hearing, asthma, hernia, hydrocele, malunion of fracture of upper extremity, shortening of lower extremity, loss of whole or part of the extremity, bony ankylosis of joint, hallux valgus, loss of fingers, deformity of lower extremity, deformity of chest, atrophy of muscle of lower extremity, and defective physical development.

On the other hand, this section showed an exceptionally small amount of arthritis, monoplegia, defective speech, dementia precox, blindness in one eye, otitis media, hypertrophic tonsillitis, valvular lesions of the heart, myocarditis, myocardial insufficiency, varicocele, and cardiac murmurs, not organic. The rate for organic heart disorders was also low. It will be seen that the defects for the first section were largely of a mechanical sort, such as are commonest in mountainous areas.

Section 2, one of the greatest and most extensive manufacturing areas of the country, is characterized by an extraordinary excess of cancer and other malignant tumors, defective speech, otitis media, myocarditis and myocardial insufficiency, hemorrhoids, varicocele and varicose veins, and bronchitis. On the other hand, the following defects were comparatively uncommon: Epilepsy and malunion of fractures.

The maritime section included an excess of the following defects: Curvature of the spine, arthritis, monoplegia, epilepsy, blindness in one eye, valvular lesions unclassified, cardiac hypertrophy, functional cardiac disorders, tachycardia, defective and deficient teeth, malunion of lower extremities, loss of part of foot and deformity of foot, deformity of upper extremity, deficient chest measurement, underweight and underheight, cryptorchidism, and general unfitness for military service. This section of Massachusetts includes a large proportion of the Portuguese found in the country. It also contains a considerable number of Italians, Russians, and French Canadians. It was on this account that such a large proportion of rejects occurred because of defective weight and height. On the other hand, the following defects were less common in the maritime than in the other sections: Neurasthenia, hyperopia, defective vision (cause not stated), strabismus, hernia and enlarged inguinal rings, flat foot, and, in general, defects of the bones and organs of locomotion.

The Boston section included an excess of the following defects: Alcoholism, neurasthenia, dementia precox, astigmatism, hyperopia, myopia, and other of defective vision (cause not stated), hypertrophic tonsillitis, enlarged inguinal rings, ples planus and pronated foot, deformities of the hand, and metatarsalgia. On the other hand, this section had the smallest ratios for the following defects: Mental deficiency, hemorrhoids, varicose veins, bronchitis, asthma, defective and deficient teeth, hydrocele, deformity of lower extremity, deficient chest measurement, underweight, underheight, cryptorchidism, and general unfitness for military service. It may be added that the city of Boston is characterized by a high percentage of Irish stock (22 per cent).

The comparative ratio of defects found in the different sections is: 685 per 1,000 in Boston, 657 per 1,000 in the manufacturing area,



653 per 1,000 in the maritime section, and 622 per 1,000 in the mountainous section.

21. *Michigan*.—The State of Michigan is divided into five sections. Section 1 includes the mining region of the northern peninsula, characterized by having 23 per cent Scandinavians and 13 per cent Finn (the largest Finnish community in the United States). Section 2 comprises the remainder of the northern peninsula and the whole of the central area of the southern peninsula. This is prevaillingly native white agricultural population. Section 3 includes the eastern double range of counties next to Lakes Huron and Erie. This was formerly a great lumber section. It comprises 93 per cent native whites of native parents. The foreign element is largely German and Canadian (not French). Section 4 includes the city of Detroit. Section 5 includes certain counties of the western side of the lower peninsula adjacent to Lake Michigan. This includes a considerable foreign population including 12 per cent Dutch (the largest Dutch community in the United States). The principal characteristics of these five sections in respect to defects found are indicated below.

These five sections may be spoken of briefly as mining section, central section, eastern section, Detroit, and western section.

Pulmonary tuberculosis is commonest in the western section and least frequent in the mining section. Venereal diseases are commonest in Detroit and next commonest in the western section. They are least common in the mining section.

As for the other diseases, the mining section shows the greatest frequency in the following: Simple goiter and (with one exception) exophthalmic goiter, astigmatism, strabismus, defective hearing, endocarditis, malunion of fracture of lower extremity, hammertoe, loss of part of foot, underheight. Probably the large proportion of French Canadians, of which there are nearly 7 per cent in this section, and Italians (44 per cent) were responsible for the large proportion of underweight found.

The following defects were least common in section 1: Curvature of the spine, arthritis, epilepsy, defective vision (cause not stated), enucleation of eye and blindness in one eye, hypertrophic tonsillitis, aortic insufficiency and unclassified valvular lesions (organic diseases in general are low in this section), varicocele, asthma, enlarged inguinal rings (hernia also is comparatively uncommon in this section), malunion of fracture of upper extremity and loss of whole or part of upper extremity, loss of whole or part of lower extremity, fibrous ankylosis joint, hallux valgus, pes cavus, pronated foot, metatarsalgia, deformity of upper extremity, and (with one exception of lower extremity deformity of chest, atrophy of muscle of lower and upper extremities, defective physical development, and underweight. This section shows itself to contain a physically fit population.

Section 2, the central agricultural section of Michigan showed an excess of the following defects: Curvature of spine, exophthalmic goiter, neurocirculatory asthenia (disordered action of the heart—a disease associated with exophthalmic goiter), defective speech, enucleation of eye and blindness in one eye, hypertrophic tonsillitis, mitral insufficiency, valvular lesions unclassified and in general organic heart defects, defective and deficient teeth, hernia, enlarged inguinal rings, loss of whole or part of upper extremity, bony ankylosis of joint, pes cavus, foot deformities, type not specified, deformi-

ties of hand and fingers as result of injury or otherwise, metatarsalgia, defective physical development and general unfitness for military service. This section, which included not only farmers but large numbers of lumbermen, is that which shows the greatest proportion of physical defects of all sections of Michigan.

The following defects are relatively uncommon: Obesity, amblyopia, endocarditis, varicose veins, and hammertoe.

Section 3 includes the largest proportion of foreigners of all parts of the lower peninsula of Michigan, outside of Detroit and the foreign blood is largely German and Canadian.

The following diseases are commoner in this section than any other of the five sections in Michigan: Arthritis, monoplegia, and other minor paralyses, mental deficiency, amblyopia, aortic insufficiency, cardiac hypertrophy (other organic heart disorders have a high rate), hallux valgus, deformity of lower extremity, deformity of chest, atrophy of muscle of lower extremity and cryptorchidism.

The following defects were relatively uncommon in section 3: Exophthalmic goiter (and with one exception simple goiter), astigmatism, myopia, defective hearing, defective and deficient teeth, malunion of fracture of lower extremity, bony ankylosis of joint and pes planus.

Section 4 includes, as stated, the city of Detroit, a great manufacturing city which has been growing rapidly up to the period of the draft, including a large number of prosperous artisans of different nationalities.

The following defects were especially common: Obesity, myopia, defective vision (cause not stated), otitis media and (with one exception) defective hearing, myocarditis, varicocele and varicose veins, tachycardia, malunion of fracture of upper extremity, fibrous ankylosis of joint, pes planus, pronated foot, and underweight.

The following defects were less common than in other sections: Simple goiter (and with two exceptions, exophthalmic goiter), disordered action of the heart, defective speech, mental deficiency, mitral stenosis, cardiac hypertrophy, hernia, deformity of lower extremity, cryptorchidism, and general unfitness for military service.

Section 5 shows an excess in the following defects: Epilepsy, blindness in one eye, mitral stenosis, asthma, loss of lower extremity, and deformity of upper extremity.

The following defects were relatively infrequent: Monoplegia and other minor paralyses, strabismus, otitis media, mitral insufficiency, myocarditis, tachycardia, loss of part of foot, foot deformity, deformities of hand and fingers due to injury or otherwise, underheight.

The relative proportion of defects found in the different sections is as follows: Central Michigan 587 per 1,000; Detroit, 569 per 1,000; east section 554 per 1,000; western section 515 per 1,000, and mining section 488 per 1,000.

22. *Minnesota.*—The great agricultural State of Minnesota is divided into four sections. Section 1 includes the northern half of the State. This is characterized by a great Scandinavian population, not far from 40 per cent of all. Section 2 includes the southern part of the State. It has a large German population of 22 per cent and Scandinavian 17 per cent. Section 3 includes the northeastern corner of the State adjacent to Lake Superior. This is characterized

by a large proportion of Scandinavian (31 per cent) and Finns (10 per cent). It is largely a mining section. Finally, section 4 includes the Twin Cities—an urban area comprising about 31 per cent native whites of native parents, the remainder being largely Scandinavian, German, and to a small extent Austrian, Russian, Irish, and Canadian. These sections may be indicated, respectively, as the northern, southern, mining, and Twin City sections.

In these sections, pulmonary tuberculosis is found most commonly in the northern section and least in the southern section. Venereal diseases are commonest in the Twin Cities, the next commonest in the mining sections. They are least common in the northern section.

Section 1 shows an excess of the following defects: Curvature of the spine, cardiac hypertrophy, varicocele, tachycardia, asthma, shortening of lower extremity, and deformity of chest. On the other hand there is the lowest ratio of defects in the following: Arthritis, simple and exophthalmic goiter, obesity, defective vision (cause not stated), enucleation of eye, otitis media, hemorrhoids, hernia, malunion of fracture of extremities, loss of whole or part of either extremity, hammertoe, hallux valgus, flat foot, pronated foot, loss of part of foot, deformity of foot, defective physical development, underweight, and underheight. Thus, the population of section 1 proves itself to be of high quality from a military standpoint.

In section 2 the following defects have an exceptionally high ratio: Arthritis, epilepsy, mental deficiency, otitis media, defective hearing, valvular lesions unclassified, varicocele, tachycardia, asthma, deformity of upper and lower extremity, defective physical development, defective chest measurement, underweight, and general unfitness for military service. The following defects are relatively uncommon: Hypertrophic tonsillitis, defective and deficient teeth, shortening of lower extremity, bony ankylosis of joint.

The southern half of Minnesota is thus in striking contrast physically from the northern part. The most striking differences in the population is the great excess of Scandinavians in the northern section, and their replacement, to a considerable extent by Germans in the southern section.

In section 3, the following defects are found in excess: Arthritis, simple and exophthalmic goiter, monoplegia (the other minor paralyses are especially frequent in this section), defective vision (cause not stated), enucleation of eye, blindness in one eye, hypertrophic tonsillitis, hemorrhoids, varicose veins, defective and deficient teeth, hernia, malunion of fracture of extremities, loss of whole or part of extremities, ankylosis of joints, loss of part of foot, deformity of foot, deformity of hand with loss of one or more fingers, atrophy of muscle of extremity, underheight, and cryptorchidism. Especially uncommon are the following defects: Curvature of the spine, mitral insufficiency, enlarged inguinal rings, deformities of chest, and general unfitness for military service.

The population of section 3 is, then, despite the deficiency in stature (due largely to the presence of Russians and French Canadians), fairly satisfactory from the military standpoint.

In section 4, the following defects are in excess: Obesity, mitral insufficiency, mitral stenosis, enlarged inguinal rings, hammertoe, hallux valgus, pes planus, pronated foot, and defective physical development. The following defects are relatively uncommon: Mono-



plegia (and most of the other minor paralyses), epilepsy, mental deficiency, blindness in one eye, defective hearing, valvular lesions unclassified, cardiac hypertrophy, varicocele, asthma, deformities of hand including loss of fingers, deformity of upper and lower extremities, and atrophy of muscles of extremities. This section stands next to the least in number of defects found.

23. *Mississippi*.—This agricultural State has the largest negro population of any State of the Union. It is divided into two sections. Section 1 is adjacent to the Mississippi River. This is a great colored area with a Negro population of 71 per cent in 1910. The remainder of the State includes a larger white population, namely, of 65 per cent. These may be called, respectively, the Negro and white sections.

The Negro section differs from the white in showing more pulmonary tuberculosis (22 per 1,000 as contrasted with 18). It also reveals much more venereal disease (90 per 1,000), as contrasted with 57 per 1,000.

In the following defects the ratio of Negro exceeds that of the white population: Monoplegia, epilepsy, defective speech, deafness, mental deficiency, astigmatism, enucleation of eye, blindness in one eye, defective hearing, mitral insufficiency, endocarditis, mitral stenosis, valvular lesions unclassified, cardiac hypertrophy, cardiac dilatation, diseases of the lymphatic system, cardiac arrhythmias, tachycardia, asthma, hydrocele and nonvenereal diseases of the genito-urinary system, malunion of fractures, shortening of lower extremity, loss of whole or part of lower extremity, pes planus, pronated foot, depressed fracture of skull, deformities of hand as result of old injury or infection, atrophy of muscle of lower extremity, deficient chest measurement, underheight, and bullet or other recent wounds. Total defects, 536 per 1,000 men examined.

On the other hand the white section shows an excess in the following defects: Pellagra, curvature of spine, benign tumors, arthritis, obesity, muscular rheumatism, dementia precox, and practically all other psychoses, strabismus, otitis media, hypertrophic tonsillitis, hemorrhoids, varicocele, varicose veins, functional cardiac disorders, defective and deficient teeth, hernia, and enlarged inguinal rings, other diseases of kidney and annexa, ankylosis, hammertoe, pes cavus, loss of part of foot, loss of fingers, metatarsalgia, deformity of chest, defective physical development, and general unfitness for military service. Total defects, 497 per 1,000 men examined. It appears, then, that from the military standpoint, the population of section 2 is physically more fit than that of section 1.

24. *Missouri*.—This State is divided into four sections, as follows: Section 1 includes the agricultural areas occupied mainly by white population. Section 2 has relatively a larger population of Negroes (about 10 per cent). It includes also the Mississippi bottoms in the southeastern part of the State. Section 3 includes the Ozark region, characterized by about 95 per cent native white population, and section 4 includes the city of St. Louis. We may briefly refer to these sections as agricultural, mixed, Ozark, and St. Louis sections.

Pulmonary tuberculosis is found most commonly in the St. Louis section, 24 per 1,000, and least in the Ozark region, 17 per 1,000. Venereal diseases were found most commonly in the St. Louis section, 37 per 1,000, and least in the Ozark region, 16 per 1,000.

Of the other diseases we find that in section 1, the following defects are in excess: Blindness in one eye, malunion of fracture of upper extremities, shortening of lower extremity, loss of whole or part of upper extremity. The following defects are relatively uncommon: Defective vision (cause not stated), deformities of hand as result of injury, and deformity of upper extremities. Thus, the prevailing white agricultural region of Missouri is relatively free from extreme high or low proportions of defects.

Section 2, the mixed farming section, shows the following defects in excess: Arthritis, epilepsy, defective speech, deafness, defective hearing, cardiac hypertrophy, cardiac arrhythmias, asthma, pes cavus, atrophy of muscles of extremities. The following defects were relatively uncommon: Monoplegia, myopia (also other defects of the vision), amblyopia, valvular lesions of the heart (unclassified), hemorrhoids, varicocele, foot deformities (type not specified), chest deformity, and underweight.

Section 3, the Ozark section, shows the following defects in excess: Mental deficiency (28 per 1,000), trachoma, hemorrhoids, varicocele, malunion of fracture of lower extremities, loss of part of foot, deformity of foot (type not specified), deformities of hand, deformities of upper and lower extremity and of chest, defective physical development, underweight, and general unfitness for military service.

Of defects relatively uncommon in this section are: Curvature of spine, arthritis, simple and exophthalmic goiter, obesity, epilepsy, deafness, trachoma, hypertrophic tonsillitis, mitral insufficiency, aortic insufficiency, mitral stenosis, cardiac hypertrophy, varicose veins, cardiac arrhythmias, tachycardia, asthma, defective and deficient teeth, hernia, enlargement of inguinal rings, malunion of fracture of upper extremity, shortening of lower extremity, loss of whole or part of either extremity, ankylosis, hammer toe, hallux valgus, flat foot, loss of one or more fingers, atrophy of muscles of lower extremity, deficient chest measurement, underheight, and cryptorchidism.

There is thus in section 3, despite a "general unfitness for military service," an extremely large proportion of persons without marked physical defect, especially in those respects which are most important for military service; as, for instance, flat foot, hernia, and heart conditions. The total defect ratio is the smallest of any section of the State—462 per 1,000. The "general unfitness for military service" probably refers to underweight, defective physical development, and the high rate of mental deficiency which characterizes this section.

Section 4, St. Louis. In this section the following defects are in excess: Curvature of the spine, simple and exophthalmic goiter, obesity, monoplegia (most of the other minor paralyses occur in a rather large proportion), myopia, defective vision (cause not stated), otitis media, hypertrophic tonsillitis, mitral insufficiency, mitral stenosis, aortic insufficiency and valvular lesions (unclassified), defective and deficient teeth, hernia, loss of whole or part of the lower extremity, bony ankylosis of joint, flat foot, pronated foot, loss of one or more fingers, deficient chest measurement.

On the other hand, the following defects are relatively uncommon: Defective speech, mental deficiency, blindness in one eye, defective hearing, pes cavus, loss of part of foot, defective physical develop-

ment, and general unfitness for military service. Thus, this section shows the grave defects of great cities, namely, excess of weak feet and, in this case, bad heart conditions.

The relative standing of these four sections in regard to defects found is as follows: St. Louis, 688 per 1,000 men examined; mixed rural population, 586 per 1,000; white rural population, 558 per 1,000; Ozark section, 462 per 1,000.

25. *Montana*.—The great mountain and desert State of Montana is divided into two sections. Section 1 includes principally the mining area and comprises a large foreign population; besides, 37.5 per cent are native whites of native parents. Of the population, 8 per cent are Irish, 8 per cent Scandinavians, 5 per cent Germans, 5 per cent English,  $4\frac{1}{2}$  per cent Austrians, etc. Section 2 comprises a more sparsely settled area, semidesert, averaging 1.4 persons per square mile. The population of this area is more than half native white of native parentage. There is, however, a considerable number of Scandinavians and Germans. These sections will be called, respectively, mountain and desert.

The mountain section is characterized by slightly more pulmonary tuberculosis and tuberculosis of other organs. It has almost twice as large a proportion of venereal diseases. As for the other defects, the following are commoner in the mountain section: Curvature of the spine, arthritis, goiter simple and exophthalmic, obesity, monoplegia and other minor paralyses, defective vision (cause not stated), enucleation of eye, blindness in one eye or both eyes, otitis media, hypertrophic tonsillitis, varicose veins, tachycardia, defective and deficient teeth, hernia and enlarged inguinal rings, nephritis and other diseases of kidney and annexa, malunion of fracture of lower extremity, loss of whole or part of extremity, bony ankylosis of joint, flat foot, loss of part of foot, other deformities of feet, deformity of extremities, atrophy of muscles of lower extremity, underweight, underheight, cryptorchidism.

On the other hand, the following defects are commoner in the desert section: Defective hearing, mitral insufficiency, mitral stenosis and valvular lesions unclassified, varicocele, asthma, malunion of fracture of upper extremity, fibrous ankylosis of joint, deformities of hand resulting from old injury or infection and loss of one or more fingers, deformity of chest, and general unfitness for military service.

The total defects found in section 1 are 575 per 1,000, as contrasted with 503 per 1,000 in section 2. Nevertheless, section 2 seems to contain a larger proportion of "generally unfit," and the heart defects are of much more serious character; but the feet are better.

26. *Nebraska*.—This agricultural State is divided into two sections. Section 2 includes a central core of counties characterized by a low urbanity (14 per cent) and by foreign stocks, largely Austrians and Russians. Section 1 includes the remainder of the State, which contains the fairly large cities of Omaha and Lincoln and has many representatives of German and Irish stocks; it includes, also, the upland plains of the western part of the State.

Pulmonary tuberculosis is found in a much higher rate in section 1 than in section 2. Venereal disease is also more abundant in section 1, probably on account of the cities and towns along the Mississippi River. In section 1 the following defects are commoner than



in section 2: Arthritis, simple and exophthalmic goiter, defective speech, deafness, defective vision (cause not stated), otitis media and perforated ear drum, defective hearing, hypertrophic tonsillitis, mitral insufficiency and most other organic lesions of the heart, flat foot, deformity of lower extremity, underweight, and underheight.

The following defects are slightly in excess in section 2: Obesity, epilepsy, mental deficiency, other psychoses, tachycardia, loss of one or more fingers, defective physical development.

A comparison of these sections does not show great differences. In sum there are counted 467 defects per 1,000 in section 1 and 390 per 1,000 in section 2.

27. *Nevada*.—The State of Nevada was not divided into sections. The relative standing of the State with relation to other States in respect to any disease may be determined by consulting Tables 1 to 75.

28. *New Hampshire*.—New Hampshire is divided into two sections—1, the northern mountainous area, and 2, the southern manufacturing area. There are 50 per cent more French Canadians in section 2 than in section 1.

The mountainous area shows less pulmonary tuberculosis but more suspected tuberculosis than does the manufacturing area. The latter term is evidently applied to many persons with "weak" lungs who have gone to live in northern New Hampshire on account of its high altitude. There was relatively more venereal disease discovered in section 1 than in section 2.

The following defects were found more frequently in the mountainous than in the manufacturing sections: Curvature of the spine, defective vision (cause not stated), mitral insufficiency, valvular lesions unclassified, myocardial insufficiency, varicose veins, defective and deficient teeth, hernia, ankylosis, hammertoe, hallux valgus, and general unfitness for military service.

On the other hand, the following defects were found to be commoner in the manufacturing section: Epilepsy, mental deficiency, otitis media and defective hearing, hypertrophic tonsillitis, cardiac hypertrophy, varicocele, various functional cardiac disorders, asthma, flat foot, pronated foot, loss of one or more fingers, underweight.

In sum, the defects found in the mountainous section are 586 per 1,000, as contrasted with 631 per 1,000 in the manufacturing area.

29. *New Jersey*.—This State is divided into three sections. Section 1 is a densely populated area lying near New York City on the west side of the Hudson River. It has a density of 2,145 persons per square mile, with 29 per cent native whites of native parents. The foreign blood is largely German, Irish, Jewish, and Italian. Section 2 includes the rural plains section, largely dairying and agricultural, with a density of 178 persons per square mile. Section 3 was originally intended to include the mountainous area of the northwestern part of the State but, by error in tabulation, the flat, maritime county of Atlantic was included. The entire area, a population of 108 persons per square mile, including Atlantic City. It has the highest proportion of native whites of native parents of any of the three sections.

Tuberculosis was commonest in the plains section and less common in the more densely populated section. Venereal disease is commonest in section 3.

Comparing sections 1 and 2, the following defects were found more commonly in the densely populated section: Curvature of the spine, exophthalmic and simple goitre, obesity, astigmatism, myopia, defective vision, cause not stated, blindness in one eye, otitis media, defective hearing, hypertrophic tonsillitis, endocarditis, and most of the organic heart lesions, varicocele, varicose veins, tachycardia, nephritis, and other nonvenereal diseases of the genito-urinary system, shortening of lower extremity, loss of whole or part of extremity, ankylosis, hammertoe, hallux valgus, pex planus, pronated foot, deformity of foot (type not stated), loss of one or more fingers, metatarsalgia, deformities of chest, atrophy of muscles of extremities, and underheight.

The following are relatively commoner in section 2 than in section 1: Arthritis, monoplegia, and the other minor paralyses, deafness, deformity of the spine, mental deficiency, asthma, hydrocele, malunion of fracture of lower extremity, depressed fracture of skull, deformities of extremities and cryptorchidism, also general unfitness for military service.

The number of defects found in the three sections is as follows: Section 3, 553 per 1,000 men examined; section 1, 543 per 1,000 men examined; and section 2, 473 per 1,000 men examined. Thus, it appears that in the population of military age, section 2 has the smallest number of defects of any of the three sections.

30. *New Mexico*.—The large and sparsely populated State of New Mexico is divided into three sections. Section 1 includes the north-western quarter of the State, characterized by having about one-third of the population Indians. Section 2 included all the rest of the State except the southern tier of counties. This is the largest section and comprises 87 per cent native white of native parents. These are largely persons who have migrated here on account of their health. Section 3 included the southern part of the State of whose population 15 per cent are Mexicans, and over 60 per cent are native whites of native parents.

A comparison of these two sections shows that tuberculosis is most common in section 3 and least common in section 2. Venereal diseases are relatively common in section 2 and somewhat less common in section 3.

The diseases which are commonest in section 1 are as follows: Epilepsy, mental deficiency, blindness in one eye, otitis media, hypertrophic tonsillitis, mitral insufficiency, valvular lesions unclassified, hernia, bony ankylosis of joint, and underweight.

On the other hand, the following diseases are relatively uncommon in the Indian section 1: Defective vision (cause not stated), defective hearing, tachycardia, deformity of the lower extremity, and cryptorchidism.

Section 2, the prevailingly white section, includes the following defects in an exceptionally high proportion: Defective vision (cause not stated), defective and deficient teeth, hallux valgus, pes planus, underweight, cryptorchidism, and general unfitness for military service.

On the other hand, the following defects are relatively uncommon: Curvature of the spine, trachoma, blindness in one eye, mitral insufficiency, asthma, bony ankylosis of joint, underheight.

In section 3, containing a large proportion of Mexicans, the following defects were in excess: Curvature of the spine, trachoma, valvular lesions of the heart (unclassified), tachycardia, asthma, hernia, and enlarged inguinal rings.

On the other hand, the following defects were relatively uncommon: Epilepsy, mental deficiency, otitis media, defective and deficient teeth, flat foot, and underweight.

The relative number of defects found in these different sections was as follows: In section 3, 584 per 1,000; section 1, 582 per 1,000; and section 2, 535 per 1,000.

31. *New York*.—This most populous State of the Union was examined in part at three different camps, namely, Greater New York, Long Island, and Westchester and Dutchess Counties at Camp Upton; the counties north of Dutchess at Camp Devens; and the rest of the State at Camp Dix. The whole State was divided for this study into eight sections. Section 1 includes Long Island and Westchester and Dutchess Counties, suburban to New York City. Section 2, Greater New York. Section 1 includes on the one hand many families whose main business is in New York City, but who live in the suburbs, commuters, and, on the other hand, it contains many small towns inhabited by those whose business is located there. This territory has a density of 210 persons per square mile and is composed of 45 per cent white persons of native parentage. Section 2 is New York City, comprising 746 inhabitants per square mile, of which only 19 per cent are native white of native parents, the rest being mostly foreign born or of foreign parentage. This includes some 20 per cent Jews, 11 or 12 per cent Italians (largely South Italians), 30 per cent Germans, 12 per cent Irish. Section 3 is the so-called eastern manufacturing area, including three counties east of the Hudson River and north of Dutchess County and some eight counties west of the Hudson and south of the Adirondack Mountains in the Mohawk River Valley.

The population of this section is about 60 per cent native white of native parents and 24 per cent native white of foreign parents. The principal European races represented are: Irish 8 per cent and Germans 7 per cent. Section 4 is called the western manufacturing region. It comprises one or two rows of counties south and east of Lake Ontario, and extends to Erie County at the east end of Lake Erie. This section stands next to New York section in total population. Sixty-two per cent of the people live in cities and 48 per cent are native white of native parentage. The principal European races represented are: Germans 11 per cent, Irish 8 per cent, also Austrians and Russians (principally Jews) 5 per cent. Section 5 includes the Catskill Mountain region. This is prevailingly native stock. Section 6 includes the city of Buffalo, which contains 28 per cent native white of native parents, 28 per cent Germans, 6 per cent Irish, and 7 per cent Austrians and Russians. Section 7 includes the southern tier of counties devoted chiefly to agriculturing and dairying. The population is 71 per cent native whites of native parents. Finally section 8 includes the Adirondack Mountains and adjacent counties. About 63 per cent of the population is native white of native parents, about 7 per cent are Canadian French, and 5 per cent Irish.

Each of the principal defects found among the drafted men will be considered in turn with reference to its distribution in these different sections.



Pulmonary tuberculosis is commonest in the Adirondack section. This is probably because of the fact that there are many sanatoria in this section for tuberculosis patients and in addition many such live in private homes here on account of their health. The smallest proportion of persons with active tuberculosis came from the region of suburban New York, section 1. The eastern manufacturing area is also relatively high in the incidence of this disease.

The highest incidence of venereal disease was found in section 6, comprising the city of Buffalo. The next highest ratio is in the western manufacturing area (section 4), the smallest rates are found in sections 1 and 2 (New York City and suburbs).

Curvature of the spine was found most commonly in the Catskill region and the lowest rate is that suburban to New York City.

The goiters are relatively common. The largest ratio is found in the Adirondack section and the next highest in Buffalo. The lowest rate is found in section 1.

Obesity is commonest in the western manufacturing area and least common in section 1.

Epilepsy is commonest in the Catskill Mountains, which is also the section that contains the largest proportion of mental defectives, as will appear directly. The smallest rate for epilepsy is in the city of Buffalo (5.5 per 1,000). Also the rate for New York City is low (5.6 per 1,000). Mental deficiency is found in greatest ratio in the Catskill region (19.3 per 1,000), lowest in New York City (8.3 per 1,000).

Astigmatism is commonest in New York City and least common in the agricultural and dairying counties of the southern tier. Likewise myopia and defective vision (cause not stated) are excessive in New York City and least in section 7. The probable significance of this is the fact that the Polish Jews of New York City have, as is well known, very defective eyes. On the contrary, complete blindness of one eye is less common in New York City and environs than in any other parts of the State. It is most common in the Catskill region. Otitis media is by far commoner in New York City than any other sections and least common in the Adirondack Mountains. This again is due to the large number of recent immigrants from east and southeastern Europe, who are much affected with this disease. Camp Upton, which drew from New York City, showed the largest proportion of otitis media of any camp, also a study of the great cities shows a great excess of otitis media in New York City over other cities.

Of defective hearing, the largest proportion is found in the Catskill Mountains and the smallest in the dairying and agricultural southern tier of counties.

Hypertrophic tonsillitis is commonest in Buffalo (29.9 per 1,000) and least common in the Adirondack section (18.3).

Of the valvular diseases of the heart, mitral insufficiency was recorded relatively more frequently from New York City than from any other sections and found least commonly in the Adirondack section. Mitral stenosis found its maximum ratio in the New York City section and its lowest ratio in the western manufacturing area. Of the valvular lesions (unclassified), Buffalo shows the highest amount, possibly due merely to the tendency of examiners of local

boards in that city to classify valvular defects found as such merely without further distribution. If all of the valvular diseases of the heart be added together, including unclassified valvular lesions, then it will be found that they are slightly commoner in the Buffalo section than in that of New York City. Cardiac hypertrophy was noted more commonly in New York City (7.8 per cent) than in any other section and least commonly in the eastern manufacturing area.

Varicose veins were found most commonly in the city of Buffalo and least commonly in the Adirondack Mountains. Tachycardia was also commonest in Buffalo and least common in the Adirondack section.

Of defective and deficient teeth the greatest proportion was found in the southern agricultural zone. The smallest proportion of defective teeth was found in New York City. This result is ascribed not merely to the instruction in the care of the teeth and facilities for their repair found in a great city, but also in the fact that the races of southeastern and eastern Europe seem to be more resistant to tooth caries than those of northwestern Europe.

Hernia was commonly distributed in Buffalo and was found in smallest proportion in the environs of New York City. Enlarged inguinal rings, however, were found most commonly in the Catskill section. Adding together hernia and enlarged inguinal rings, they are found more frequently in the Catskill section than in any other.

Shortening of the lower extremity is found most commonly in the Adirondack region and least commonly in the counties surrounding New York City.

Hallux valgus is also found most commonly in the Catskill section and least frequently in the agricultural and dairying section. Pes planus, on the other hand, was commonest in New York City, and was found in the smallest proportion of cases in the Adirondack section, while pronated foot is found more frequently in the western manufacturing section, least in the counties surrounding New York City.

The loss of one or more fingers has its highest ratio in the Adirondack section (probably in connection with the lumber and agriculturing operations there), whereas this defect is found in the smallest proportion of cases in the suburban regions of New York City. Deformity of the lower extremity finds its highest ratio in the western manufacturing region and its lowest in the suburban regions of New York.

Relatively more men were found underweight in the eastern manufacturing section than in any other and fewest in section 1. On the other hand, underheight was relatively far more common in New York City than any other section and least common in the Adirondack section. The term "general unfitness for military service" was applied more frequently in the Catskill Mountains than any other section and less frequently in the environs of New York City.

Considering now, in sequence, these sections of New York State, section 1, the environs of New York City (which contains the largest proportion of the commuting class) is that in which the smallest ratio of defects was found (502 per 1,000). From this section was recorded the smallest proportion of pulmonary tuberculosis and of tuberculosis of other organs, of total venereal diseases, of curvature

of the spine, exophthalmic goiter, obesity, drug addiction, locomotor ataxia, paraplegia, defective speech, deafness, unspecified deformity, or disease of the spine, blindness in one eye (and with one exception blindness in both eyes), endocarditis, hernia, shortening of lower extremity, contracture of muscle fascia and tendon sheath, pronated foot, loss of part of foot, deformities of hand resulting from old injury or infection, loss of one or more fingers, metatarsalgia, deformity of lower extremity, deformity of chest, defective physical development, underweight, and ill-defined diseases.

On the other hand, only two defects were found in excess here, namely, myocarditis (1.5) and functional cardiac disorders (1.3). The young men drawn from this section belong largely to the commuting class, and these represent a group selected for fine physique.

Section 2, New York City, stands third from the top in the number of defects found (608 per 1,000). It leads in the defect rate in the following defects and diseases: Drug addiction (2.2), deaf-mutism (1.3) (doubtless due largely to the resort of deaf and dumb to New York City for instruction), constitutional psychopathic state (1.2), astigmatism, hyperopia, myopia, and other defective vision (largely due to defects in the eyesight of the Polish Jews), trachoma (largely brought in by recent immigrants from Europe), amblyopia, enucleation of the eye, otitis media (with a rate of 22 per 1,000, probably the highest rate for this defect in any section of the country; due to immigrants from southeastern Europe), endocarditis, aortic insufficiency, mitral insufficiency, mitral stenosis (the excess in these cardio-vascular defects is probably due to more critical examination; they probably occur at a lower rate than in Buffalo), cardiac hypertrophy, pes planus (123 per 1,000; exceeded by Boston and some other cities), underheight (5.9 per 1,000; of racial significance), and cryptorchidism.

The following defects occurred at a lower rate in New York City than in any other section of the State: Mental deficiency (8.3) (in part due to the thorough segregation of the feeble minded in this city in the institutions located elsewhere), defective and deficient teeth (14.3), malunion of fracture of lower extremity (1.5), loss of whole or part of upper extremity (1) deformity of foot not further specified (1.9), deformity of upper extremity (1.4).

The foregoing analyses show that the defects found in New York City are largely associated with the races which are found there and with the bad feet found in cities generally. The low rates are connected with the segregation of the mentally deficient and with the opportunities for surgical and remedial treatment.

Section 3, the eastern manufacturing section, comprises in reality a great variety of environments. On the one hand the manufacturing cities of the lower Mohawk Valley, on the other hand certain rural counties east of the Hudson River. This section stands fifth from the top in order of proportion of defectives found. The rate is 594 per 1,000. The highest defect rate was found in this section for the following defects:

Defective speech, monoplegia, blindness in both eyes, malunion of fracture of upper extremity, deformities of hand resulting from old injury or infection, talipes or flat foot, atrophy of muscle of upper extremity (in atrophy of muscle of lower extremity, this



section occupies a median position), deficient chest measurement, and underweight.

On the other hand, in the following defects, the rate is lowest in the State: Strabismus, valvular diseases of the heart, cardiac hypertrophy.

Section 4, the western manufacturing section, includes the large manufacturing cities along the upper Mohawk River and New York Central and West Shore Railroads, such as Rochester, Syracuse, Utica, and Rome. It includes, also, an extensive agricultural area between these cities. It stands fourth from the top in the ratio of defect found, namely 601 per 1,000.

Section 4 has a higher defect rate than any other section in the following diseases and defects: Obesity, asthma, nephritis, and other diseases of the genito-urinary system (nonvenereal), pronated foot and foot deformities not further specified, metatarsalgia (third from the top in pes planus, namely 114), deformity of lower extremity. Thus section 4 seems to occupy a median position without exceptionally high or low rate in any important defect.

Section 5 includes the Catskill Mountains. This has been since early days in part a retiring place for the anti-social or mal-adjusted from New York City. It also contains sanatoria and other institutions for physical and mental defectives. It has the highest defect rate of all sections (626.5 per 1,000).

This section has the highest ratio in the following defects: Curvature of the spine (7.9), hemiplegia and apoplexy, paraplegia (and highest but one in facial paralysis), epilepsy, deformity or disease of spine (not further specified), mental defectives, dementia precox, other psychoneuroses (with the exception of one section, manic depressive psychosis), strabismus, cataract, blindness in one eye, defective hearing, combined valvular lesions, aortic and mitral; enlargement of inguinal rings (with 2 exceptions also of hernia, namely, 21 per 1,000), hydrocele, shortening of lower extremity, bony and fibrous ankylosis of joint, contracture of muscle fascia and tendon sheath, hammer toe, hallux valgus, atrophy of muscle of lower extremities, miscellaneous diseases of bones and organs of locomotion, defective physical development (with one exception, underweight), and general unfitness for military service. This last gives a clear picture of the physical and mental imperfections which find their greatest rate of incidence in this section of New York State.

Section 6, Buffalo. This section stands second in ratio of defects, namely, 614 per 1,000. This city, besides other characteristics, is a leading port of Lake Erie.

In Buffalo, the highest defect rates of all sections were found in the following diseases and defects: Perforated ear drum (2.4), hypertrophic tonsillitis (29.9), valvular lesions of the heart (527), hemorrhoids, varicocele, varicose veins, tachycardia, hernia (in hernia and inguinal rings together the rate is 38 per 1,000, occupying a relatively low position), loss of whole or part of upper extremity. This section also has the highest venereal rate.

On the other hand in the following defects the rate is lowest in any section of the State: Epilepsy, constitutional psychopathic state, fibrous ankylosis of joint, talipes, atrophy of muscle of upper extremity, deficient chest measurement, cleft palate.

Section 7, the agricultural or dairying section of the southern tier of counties, stands third from the bottom in the list of defect rates found. The rate is 544 per 1,000. The defect rate of the following diseases and defects is the highest of any section of the State: Arthritis, defective and deficient teeth (36 per 100), deformity of chest, and cleft palate.

On the other hand, in the following defects section 7 has the smallest rate in the State: Deaf-mutism, hyperopia and defective vision generally, defective hearing, nephritis, hallux valgus, atrophy of muscle of lower extremity, miscellaneous diseases of bones and organs of locomotion, and cryptorchidism. This list gives a clear picture of the good and bad physical defects found in the high-class rural community.

Section 8 includes the Adirondack Mountains and certain surrounding counties. It stands next to the bottom in the number of defects found, despite the fact that the region has been used as a resort for tuberculous patients. Consequently it has the highest tubercular rate of all sections.

The defect rate is the highest of any section in the following additional diseases and defects: Simple and exophthalmic goiter, deafness, cardiac dilatation, diseases of kidney and annexa other than nephritis, loss of part of foot, loss of one or more fingers, deformity of upper extremity.

On the other hand, the defect rate of the following defects and diseases was lowest in any section: Hemiplegia and apoplexy, dementia precox, unspecified psychoses, myopia, otitis media, perforated ear drum, hypertrophic tonsillitis, mitral insufficiency, myocarditis, hemorrhoids, varicocele, functional cardiac disorders, tachycardia, hydrocele, malunion of fracture of upper extremity, shortening of lower extremity, loss of whole or part of lower extremity, hammertoe, hallux valgus, pes planus, and underheight.

The general picture is that of well-formed men with good feet, hearts, nerves, and sense organs, but a considerable number of deformities due to traumatism. Such is a population that inhabits a northern mountainous region.

32. *North Carolina*.—The conditions of the population in North Carolina are so heterogenous as to make it desirable to divide the State into six sections. These are as follows: Section 1, the sparsely populated, mountainous area containing a large proportion of mountain whites; section 2, an intermediate area, including the upper plains country. This has about 25 per cent negroes. Section 3 includes the descendants of the Scottish element of Cape Fear region, characterized by great height; likewise, the negroes and the descendants of the original Indian population are exceptionally large men. About 38 per cent of the population is colored. Section 4 includes the greater part of the low-lying agricultural area, of which about 47 per cent are colored. Section 5 includes the island and peninsular areas back of Cape Hatteras. Only about 30 per cent of the population is colored. The remaining counties, in the southeast corner of the State, are placed in section 6, with about 41 per cent colored population. These six sections may be designated briefly as mountain, intermediate, Scotch, Negro, peninsular, and mixed. First will be taken up in order the leading diseases and

defects and a statement made as to their relative incidence in the different sections.

Pulmonary tuberculosis is commonest in the intermediate section (37 per 1,000) and least common in the peninsular section (9 per 1,000).

Venereal diseases are commonest in the negro section (51 per 1,000) and least common among the mountain whites (23 per 1,000). Epilepsy is commonest in the peninsular region, which is doubtless one of extensive inbreeding, and least common in the intermediate section. Mental deficiency is commonest in the mixed section and least common in the peninsular section. Defective vision is relatively most frequent in the Scotch section and the intermediate section. Hypertrophic tonsillitis is found relatively most common among the mountain whites and least in the peninsular section. Mitral insufficiency is commonest in the Scotch section and least common in the peninsular section, but valvular diseases of the heart in general seem to be commonest in the Negro and mixed sections. Defective and deficient teeth are relatively commonest among the mountain whites and least common in the peninsular section. Hernia, on the other hand, is commonest in the peninsular section and least common in the intermediate section. If we combine hernia and inguinal rings, we find the greatest incidence to be in the peninsular section and least in the mixed section. Hallux valgus is commonest in the Negro section and least common in that of the Scotch. Flat foot is commonest in the Negro section and least common among the mountain whites. On the other hand, pronated foot is recorded most commonly from the Scotch section and least from the peninsular section. Deformity of lower extremity is found much more commonly in the intermediate section and least among the Scotch. Underweight is found most commonly in the mixed section and least in the Negro section. More persons are classified as generally unfit for military service from the peninsular section and fewest from the Scotch section.

Next will be considered in turn the separate sections with the prevailing defects or freedom from defects in each.

Section 1 shows the greatest proportion of defects of any of the sections of the State (512 per 1,000).

The defect rate is smallest for the following defects and diseases: Venereal diseases, all, and (separately) syphilis and gonococcus infection (23 per 1,000), defective and deficient teeth, bony ankylosis of joint, deformity of upper extremity. In mental deficiency this section is next to the highest. On the other hand, the following defects and diseases have the lowest defect rate: Loss of whole or part of upper extremity, flat foot. The low rate for foot defects is to be expected from a hardy race living in the mountains.

Section 2, which is the intermediate agricultural section, stands third from the top of the list of defects, being 545 per 1,000. The defect rate is highest in the following diseases and defects: Pulmonary tuberculosis (37 per 1,000), varicocele, loss of whole or part of lower extremity, deformity of lower extremity.

On the other hand, the defect rate is lowest for the following diseases and defects: Epilepsy and defective vision not further specified, blindness in one eye, asthma, hernia.



Section 3 includes a large proportion of Scotch among the native whites. It stands next to the bottom in ratio of defects found (535 per 1,000).

The following diseases and defects show the highest defect rate of any section of the State: Defective vision, not otherwise specified, defective hearing, mitral insufficiency (but not all valvular diseases of the heart), pronated foot.

On the other hand, the following diseases and defects show the lowest defect rate of any section of the State: Varicose veins, tachycardia, malunion of fracture of upper extremity, deformities of hand resulting from injury or infection, loss of one or more fingers, deformity of lower extremity, atrophy of muscle of lower extremity, and general unfitness for military service.

Section 4, the prevailingly Negro section, is second from the top in the ratio of defects found, namely, 568 per 1,000.

The defect rate is highest for the following diseases and defects: Venereal diseases (51 per 1,000), especially gonorrhea (37 per 1,000), asthma, hallux valgus, pes planus, undistributed diseases of bones and organs of locomotion.

On the other hand, the defect rate is lowest for the following: Underweight.

Section 5 is of interest because it includes areas remote from lines of traffic and in which the population doubtless is highly inbred. It stands fourth from the top in the ratio of defects found, namely, 536 per 1,000.

The following diseases and defects showed in this section the greatest defect rate of any: Epilepsy (14.5 per 1,000), blindness in one eye (11 per 1,000), otitis media (3.4), cardiac hypertrophy (8.5), hernia (23) combined with enlarged inguinal rings the rate far exceeds that of any other section (33 per 1,000), malunion of fracture of upper extremity, loss of whole or part of upper extremity, fibrous ankylosis of joint, deformity of foot, not otherwise specified, deformities of hand resulting from old injury or infection, loss of one or more fingers, deformity of chest, and general unfitness for military service.

On the other hand, the following defects and diseases showed the lowest defect rate in the State: Pulmonary tuberculosis, curvature of the spine, mental deficiency, defective hearing, hypertrophic tonsillitis, mitral insufficiency (in general, valvular diseases of the heart are relatively uncommon), tachycardia, defective and deficient teeth, shortening of lower extremity, loss of whole or part of lower extremity, bony ankylosis of joint, contracture of muscle fascia and tendon sheath, pronated foot, deformity of upper extremity, unspecified diseases of bones and organs of locomotion, deficient physical development, and underheight.

The principal defects of the population are thus hernia and certain mechanical defects.

Section 6 includes the remainder of the State and stands first in the number of defects found, namely, 569 per 1,000.

The following diseases and defects showed the greatest defect rate of any section of the State (venereal diseases having the second highest ratio of any section): Curvature of the spine, mental deficiency, and varicose veins, malunion of fracture of lower extremity,

shortening of lower extremity, contracture of muscle fascia, atrophy of muscles of lower extremity, defective physical development, underweight and underheight.

The following diseases and defects showed the lowest defect rate of any section of the State: Otitis media, cardiac hypertrophy, enlargement of inguinal rings (together with hernia the sum also shows the lowest defect rate in the State), fibrous ankylosis of joint, deformity of foot, not otherwise specified, and deformity of chest.

33. *North Dakota*.—This urban State has been divided into three sections. Section 1 lies in the northeast corner of the State and contains a large proportion of Scandinavians, 24 per cent; Canadian, other than French Canadian, 16 per cent. Only 21 per cent of the population is native white of native parents. Section 2 occupies areas in the east and west and contains a prevailing Scandinavian population, 31 per cent; about equal to that of native whites of native parents. Section 3 includes the central and southern counties, with about 27 per cent Russian population in 1910, and about the same proportion as the native whites of native parents. These three areas may be designated, respectively, by their differential populations, as Canadian, Scandinavian, and Russian.

In comparing the incidence of the different diseases in the three sections, we find that section 1 is characterized by the smallest proportion of defects (506 per 1,000).

Among the defects and diseases which have a higher defect rate in this section than in any other are: Epilepsy (4.3), mental deficiency (19.2), hypertrophic tonsillitis (21.5), valvular diseases of heart, cardiac hypertrophy (5.6), shortening of the lower extremity (5), fibrous ankylosis of joint (4.3), deformity of foot (4.6), deformity of lower extremity (8.9), underweight (15.2), cryptorchidism (4.6), and general unfitness for military service (5.6).

On the other hand, the following diseases and defects have the lowest rate of any of the sections: Pulmonary tuberculosis, curvature of the spine, simple goiter (although exophthalmic goiter is fairly high), defective vision unclassified (18.9 per 1,000), defective hearing, varicocele, varicose veins, asthma, defective and deficient teeth, hernia, enlarged inguinal rings, malunion of fracture of lower extremity, flat foot, and loss of one or more fingers.

Section 2, the Scandinavian section, is characterized by the greatest defect rate in the following diseases and defects: Pulmonary tuberculosis, curvature of the spine, defective and deficient teeth, hernia and enlarged inguinal rings, flat foot and metatarsalgia.

On the other hand, the following defects and diseases have the lowest defect rate: Exophthalmic goiter (simple goiter has next to the lowest rate), epilepsy, mental deficiency, trachoma, otitis media, cardiac hypertrophy, bony ankylosis of joint, and underweight.

This section stands in a middle position in the series of ratios of defects found, being 511 defects per 1,000.

Section 3, Russian, has the following defects and diseases, with the highest defect rate: Goiter, both simple and exophthalmic, defective vision unclassified, trachoma, blindness in one eye, otitis media, defective hearing, varicose veins, asthma, hernia, bony ankylosis of joint, and hammer toe.

On the other hand, the following diseases and defects have the lowest defect rate: Hypertrophic tonsillitis, mitral insufficiency,

fibrous ankylosis of joint, shortening of lower extremity, pes cavus, metatarsalgia, cryptorchidism, and general unfitness for military service.

This section shows the highest percentage of defects, namely 556 per 1,000. Its greatest weaknesses are in the eyes, and ears, and in hernia.

34. *Ohio*.—The populous State of Ohio comprises both manufacturing and agricultural areas, together with two large cities. It is divided into four sections. Section 1 includes the lake front and has a density of 478 persons per square mile. Only one-third of the inhabitants are native born of native parents. Nineteen per cent are Germans, 13 per cent Austrians and Russians, and 6 per cent Hungarians. Section 2 is intermediate in its characteristics between the densely populated and agricultural. It contains, also, some smaller cities. Sixty-five per cent of the population is native born of native parents. Germans, Austrians, Italians, Hungarians, and English are elements of the more recent immigrants. Section 3 includes the greater part of the agricultural area of Ohio, with about 79 per cent of the population of native parents. Finally, section 4 includes the city of Cincinnati. These four sections may be designated briefly as populous, intermediate, agricultural, and Cincinnati.

First, will be briefly discussed the relative incidence between the principal diseases and defects in these four sections.

Pulmonary tuberculosis shows the highest ratio in Cincinnati, next in the agricultural and populous sections, and least in the intermediate region. Venereal diseases are commonest in the intermediate section and show the smallest ratio in the agricultural section. Curvature of the spine is commonest, however, in the agricultural section and show the smallest ratio in the agricultural section. Goiter is commonest in the agricultural region, but simple goiter is commonest in the intermediate section. Epilepsy is commonest in the agricultural section and least so in the populous one. Mental deficiency is commonest in the agricultural section and least in Cincinnati. Defective vision is commonest in Cincinnati and least in the intermediate section. Otitis media is commonest in Cincinnati and least so in the intermediate section. Hypertrophic tonsillitis is commonest in the agricultural section and least in Cincinnati. Valvular diseases of the heart and tachycardia each shows the highest defect. Defective and deficient teeth are most common in the intermediate region and least so in the agricultural area. Hernia is commonest in Cincinnati and has the lowest defect rate in the populous area. Malunion of fracture is especially common in Cincinnati, but flat foot finds its greatest relative frequency in the populous area and is least common in the agricultural area. The agricultural area showed the largest amount of underweight and the intermediate area the least.

Section 1, the most populous area, comes next to the lowest in defect rate found, having a defect rate of 490 per 1,000.

The defects and diseases which show the highest defect rate in this section are: Monoplegia, endocarditis, varicocele, fibrous ankylosis.

The defects and diseases which show the lowest defect rate of any section are: Arthritis, epilepsy, defective speech, deaf-mutism, blindness in one eye, valvular diseases of the heart, bronchitis, hernia in



strict sense, malunion of fracture of lower extremity, loss of whole or part of extremities, deformities of hand and foot, metatarsalgia, deformity of lower extremity, and atrophy of muscles of appendages.

Section 2, the intermediate section, shows a high defect rate for simple goiter, bronchitis, defective and deficient teeth, enlarged inguinal rings, hydrocele, and deformities of hand and fingers. It shows the minimum defect rate for pulmonary tuberculosis, curvature of the spine, obesity, deafness, defective vision, otitis media, mitral insufficiency, tachycardia, and underweight.

Section 3, the agricultural section, stands next to the top in the number of defects found. Its ratio is 516 per 1,000.

The defects and diseases which show here the greatest defect rate of any section are: Curvature of the spine, arthritis, exophthalmic goiter, epilepsy, deaf-mutism and deafness, mental deficiency and unclassified psychoses, defective hearing, hypertrophic tonsillitis, varicose veins, loss of whole or part of extremities, chronic dislocation of hand, deformity of feet, deformity of extremities and of chest, atrophy of muscles of the extremities, defective physical development, underweight, cryptorchidism, and general unfitness for military service.

Finally, section 4, Cincinnati section, shows the highest proportion of defects, 547 per 1,000. The following defects and diseases show the highest defect rate of all sections:

Tuberculosis, defective vision (undistributed), otitis media, mitral insufficiency and valvular lesions in general, tachycardia, hernia, malunion of fractures of extremities, hallux valgus, pronated foot, and underheight.

The following diseases and defects show the lowest defect rate of any section: Goiter, simple and exophthalmic, mental deficiency, hypertrophic tonsillitis, varicocele and varicose veins, asthma, ankylosis of joint, pes cavus, loss of fingers, defective physical development.

35. *Oklahoma*.—Two sections are recognized in this State, section 1, in the east, having a population of 14 per cent negro and 9.2 Indian; and section 2, the western half, which has chiefly a white population, 83 per cent native white of native parents.

Comparing these two sections, we find that section 1, the Indian section, has the highest defect rate (540 per 1,000), while the white section has a rate of 486 per 1,000.

Pulmonary tuberculosis is commoner in section 1 than in section 2, and likewise venereal disease. In section 1, there is more curvature of the spine, arthritis, monoplegia, deafness and deaf-mutism, defective vision, trachoma, enucleation of eye, otitis media, varicocele and varicose veins, tachycardia, defective and deficient teeth, malunion of fracture, loss of extremities, ankylosis, chronic dislocation, hallux valgus, pes planus and most other foot defects, deformities and injuries to hand, deformity of chest, underweight, underheight, and defective physical development.

On the other hand, in section 2 we have an excess of epilepsy, mental deficiency, blindness in one eye, hypertrophic tonsillitis, valvular diseases of the heart, hernia and enlarged inguinal rings, deformities of upper and lower extremity. Thus, section 2 shows an excess of developmental defects which are more common in the pure native white population than in the mixed population.

36. *Oregon*.—This State is divided into two sections. Section 1 includes the northwestern corner of the State and section 2 the remainder. Section 1 has a density of about 30 inhabitants per square mile, over half of whom are native white of native parentage. Germans, Scandinavians, Russians, and English Canadians make up a large part of the remainder. Section 2 is sparsely populated and consists chiefly of native whites of native parentage with a reduced percentage of the above-named peoples. Section 1 is on the Pacific coast and well watered, while section 2 is semiarid. Section 2 shows the higher defect rate (729 per 1,000), while section 1 has a rate of only 681 per 1,000.

There is slightly more pulmonary tuberculosis in section 2, probably because persons with incipient tuberculosis have gone there for their health. The venereal rate is very low in both sections, somewhat higher in section 2. Simple goiter has a high rate (26 per 1,000 in section 2). Combined with exophthalmic goiter, the rate is about 30 for both sections. Monoplegia is much commoner in section 2 than in section 1 and epilepsy and mental deficiency and the psychoses are likewise commoner. On the other hand, there is more defective vision in section 1. On the other hand, otitis media and defective hearing are much higher in section 2 than in section 1. Hypertrophic tonsillitis is relatively commoner in the desert section and the same is true of the valvular diseases of the heart. Tachycardia is commoner in section 1. The teeth are somewhat more defective in section 1 and hernia is decidedly commoner there. Also the mechanical defects are for the most part commoner in the desert section, except that flat foot is more frequent in section 1, which contains the large cities. More of the inhabitants of section 1 are underweight and underheight than of section 2.

37. *Pennsylvania*.—The State of Pennsylvania was examined in part at three camps. The eastern half of the State was examined at Camp Meade, most of the western part at Camp Lee and five of the counties of the southwestern corner were examined at Camp Sherman. The different ideals of the examiners at these three camps have some effect in determining the relative frequency of defects found in different parts of the State. Pennsylvania has been divided into seven sections. Section 1 includes the county and city of Philadelphia. Section 2 is a rural area which is cultivated chiefly by native stock. Section 3 is the mining area inhabited by many peoples from different provinces from Russia and Austria, as well as Germans, Irish, English, Italians, and Hungarians. Section 4 is that part of the coal-mining area which was examined at Camp Sherman. Section 5 includes the steel mining and manufacturing areas outside of Pittsburgh. Section 6 includes a large rural area in the northwestern part of the State, and section 7 includes the city of Pittsburgh plus a sparsely settled region in the northern part of the State. The union of these two sections in our statistics is an error in tabulation but does not affect the end result to a great degree as the characteristics of the population are controlled by Pittsburgh and McKeesport, in Alleghany County. Section 7 contains a large proportion of immigrants from certain regions of Russia and Austria as well as many Germans and Irish. These sections will be referred to as follows:

Section 1, Philadelphia; section 2, south rural area; section 3, anthracite mining; section 4, southwestern mining; section 5, steel and manufacturing section; section 6, north rural area, and section 7, Pittsburgh.

Considering the principal diseases found in the State, it appears that the highest ratio for pulmonary tuberculosis is found in section 2 (rural) and the least in section 5, which is largely steel and manufacturing regions. For the venereal diseases, the highest ratio is in section 5 and the lowest in section 3, the anthracite coal mining district. Curvature of the spine is commonest in the rural section, section 6, and relatively least common in Pittsburgh. Exophthalmic goiter is commonest in Pittsburgh and least common in Philadelphia. Simple goiter is commonest in the northwestern corner of the State and least common in Pittsburgh. Epilepsy is commonest in the southern rural district, section 2, and least common in section 4. Mental deficiency is commonest in the southern rural area and least common in Philadelphia. Myopia is highest in Philadelphia and the lowest rate is in the southwestern mining area. A larger proportion of people are blind in one eye in the "steel and manufacturing section," and fewest in Pittsburgh. Otitis media is commonest in Philadelphia and least so in the southwestern mining area. Defective hearing is commonest in the southern rural section and rarest in the steel section. Hypertrophic tonsillitis is commonest in the "steel and manufacturing section" and least so in Philadelphia. Valvular diseases of the heart are commonest in the southern rural area and apparently least so in the steel district. Tachycardia is commonest in the southern rural section and least so in that of the northwestern area. Defective and deficient teeth are more frequent in the southern rural area and least in the southwestern mining area. Hernia is especially common in the southern rural area and relatively uncommon in the southwestern mining area. Enlarged inguinal rings, however, are commonest in the northwestern rural area and least common in Philadelphia. Loss of whole or part of extremities is commonest in the steel section and least so in Philadelphia. Flat foot is commonest as is usual, in the great cities, especially Philadelphia and Pittsburgh. It is least common in the southern and northern urban sections. Metatarsalgia, however, is commonest in the anthracite mining region, while fewest cases were noted in Philadelphia. Persons of underweight were especially common in Philadelphia and least so in the southwestern mining section. There are more underheights in Philadelphia than in any other section and fewest in the northwestern rural area. The largest ratio for "general unfitness for military service" is in the southern rural section and the smallest in section 4.

A comparison will now be made between the seven sections. Section 1 is fourth in the size of the ratio of defects, namely, 598 per 1,000.

The following diseases and defects had the highest defect rate in this section (Philadelphia): Astigmatism, myopia, cataract, amblyopia, otitis media, perforated ear drum, aortic insufficiency, mitral stenosis, bronchitis, hallux valgus, pes planus, depressed fracture of the skull, underweight and underheight. This list includes only the great urban defects.



The lowest defect rate of the following diseases and defects was found in section 1, as follows: Goiter, simple and exophthalmic, mental deficiency, sinusitis (not much recorded at Camp Meade), hypertrophic tonsillitis, varicocele, varicose veins, enlarged inguinal rings, malunion of fracture of lower extremity, loss of whole or part of upper and lower extremities, bony ankylosis of joint, pes cavus, loss or deformity of foot, loss of fingers, metatarsalgia, deformity of chest, cryptorchidism and cleft palate.

Section 2 (the southern rural section, largely descended from the German stock of Revolutionary days) is second in the defect rate, namely 638 per 1,000 men examined.

The following defects and diseases showed the highest rate of any section: Pulmonary tuberculosis, obesity, epilepsy, defective speech, deafness, mental deficiency, defective vision, defective hearing, mitral insufficiency and valvular diseases of the heart in general, functional cardiac disorders, tachycardia, defective and deficient teeth, hernia, shortening of lower extremity, deformity of chest, atrophy of muscles of lower extremity, defective physical development, defective chest measurement, cleft palate, and general unfitness for military service.

The following defects and diseases showed the lowest defect rate: Hyperopia, malunion of fracture of upper extremities and pes planus.

Section 3, the anthracite mining section, shows the highest defect rate of the following defects and diseases: Hyperopia, otitis media, cardiac hypertrophy, diseases of tonsils (except section 5), various nonvenereal diseases of genito-urinary system and the skin, malunion of fracture of lower extremity, fibrous ankylosis, pes cavus, deformities of hand resulting from old injury or infection, metatarsalgia, atrophy of muscle of upper extremity, other diseases of bones and organs of locomotion not specified. On account of these severe defects and a general high defect rate in many others, this section has the highest total defect rate of any section of the State (638 per 1,000).

The following defects and diseases have the lowest defect rate in section 3: Venereal diseases and hammertoe.

Section 4, the mining section of the southwestern corner of the State, comes last in the ratio of defects found (514 per 1,000 men): The following defects and diseases showed the highest defect rate: Arthritis, sinusitis, hydrocele, hammertoe. These are mostly unimportant defects in this section. On the other hand, the following defects and diseases showed the lowest defect rate of any section: Monoplegia and, for the most part, other minor paralyses, epilepsy, deafness, dementia præcox, myopia, otitis media, perforated eardrum, endocarditis, mitral insufficiency, cardiac hypertrophy, functional cardiac disorders, defective and deficient teeth, hernia, chronic dislocation other than hand, contractures of muscle fascia, tendon and sheath, pronated foot, depressed fracture of skull, deformities of hand, talipes, deformity of upper extremity, atrophy of muscles of upper and lower extremity, underweight and general unfitness for military service.

The low rate of defect in section 4 is largely because registrants from it were examined at Camp Sherman, where few defects were found.

Section 5, the steel mining section. This section shows next to the lowest ratio of defects of any section of the State, namely, 588 per 1,000 men. The following defects and diseases had the highest defect rate of any section of the State: Venereal diseases, dementia præcox, psychosis (not otherwise classified), blindness in one eye, hypertrophic tonsillitis, hemorrhoids, malunion of fracture of upper extremity, loss of whole or part of both extremities, deformity of upper extremity, and cryptorchidism. On the other hand, the following defects and diseases show the lowest defect rate: Pulmonary tuberculosis, arthritis, defective vision (undistributed), enucleation of eye, defective hearing, mitral stenosis, valvular lesions not otherwise classified, and, indeed, apparently valvular diseases of the heart in general, and fibrous ankylosis of joint.

Section 6, the northern agricultural area, stands third from the top in the ratio of defects found, namely, 608 per 1,000 men. The following defects and diseases had the highest defect rate in this section: Curvature of the spine, simple goiter (exophthalmic goiter has next to the highest rate in this section), monoplegia, enucleation of the eye, endocarditis, varicocele, varicose veins, asthma, enlargement of inguinal rings (and, indeed, of hernia and enlarged inguinal rings combined), pronated foot, loss of one or more fingers, and deformity of lower extremity. On the other hand, the following diseases and defects showed the lowest defect rate of any section: Obesity, defective speech, hallux valgus, defective physical development, deficient chest measurement, and underheight.

Section 7 comprises the city of Pittsburgh plus a sparsely populated rural area. This section stands fifth in defect rate, namely, 589 per 1,000.

The following diseases and defects showed the highest defect rate of any section: Exophthalmic goiter alone and also combined with simple goiter; loss of part of foot. On the other hand, the following diseases and defects showed the lowest defect rate of any section of the State: Curvature of the spine and other deformities of the spine, strabismus, amblyopia, blindness in one eye, hemorrhoids, hydrocele, shortening of lower extremity, hammertoe. Thus, the young men of Pittsburgh are shown to be a highly selected part of the population.

38. *Rhode Island*.—This State is not divided into sections. For the position of particular diseases and defects of this State, consult Tables 1-75, inclusive.

39. *South Carolina*.—South Carolina is divided into three sections: Section 1, the mountain section, which includes 68 per cent native whites of native parentage and 31 per cent Negroes. Section 2, in the central part of the State, which has 60 per cent Negroes, and section 3, the peninsula and rural section, being the sandy Coastal Plain section and containing the city of Charleston, and 62 per cent colored population. These three sections may be referred to briefly as mountainous, Negro, and coastal.

Of these three sections, the coastal section, which has slightly the highest Negro rate, has also the highest defect rate, namely, 546 per 1,000. The central Negro section has a rate of 515 per 1,000, and the mountain section 456 per 1,000. These ratios of defect run approximately parallel with the ratios of colored population in the respective sections.

Considering now the relative incidence of the principal diseases in these three sections, we find that tuberculosis is commonest in the mountain section and least so in the central section. Venereal diseases are commonest in the central section and least in the mountains. Curvature of the spine is common in the central section and least in the mountains. Epilepsy and neuresthenia are commonest in the mountain district and least in the coastal. Defective speech, on the other hand, is commonest in the coastal section and least common in the mountains. Mental deficiency is commonest in the mountain section and least so in that of the coastal section. Defective vision, on the other hand, is commonest in the coastal section and least so in the mountains. Hypertrophic tonsillitis is commonest in the central section and least in the coastal. Valvular diseases of the heart are commonest in the coastal section and least in the mountains. Varicocele and varicose veins are commonest in the mountains. Tachycardia is least frequent there. Defective and deficient teeth are commonest in the mountains and less so in the coastal section, and the same is true of hernia. Bony ankylosis is commonest in the central section and least common in the mountains, but fibrous ankylosis is commonest of all in the coastal section. *Pes planus* is commonest in the coastal section in which is situated the city of Charleston and least common in the mountains. Pronated foot and loss of foot are relatively rarer in the mountains, though there is an excess in the mountains of loss of one or more fingers. Relatively rare in the mountains are deformities of the upper\* and lower extremity, though these are commoner in the coastal district. However, there is more chest deformity in the mountains than the lowland. The mountaineers are characterized by a high percentage of defective physical development and of cryptorchidism, but more underweight and underheight is found in the coastal population. Fewest of the mountaineers were designated as generally unfit for military service. In general, there was a superior quality of the feet of the mountainous population over those of the coastal region and the cities.

40. *South Dakota*.—This great farming State is divided into three sections. Section 1 includes the dry farming area in the central part of the State. Section 2 includes certain counties with a large Russian population, over 25 per cent, and section 3 includes a number of counties comprising 87 per cent Indians, or did in the census of 1910. These three sections may be designated respectively as central, Russian, and Indian.

Of total defects found, the greatest ratio falls in the Indian section (492 per 1,000); the next highest ratio is in the Russian section (490 per 1,000); and the lowest ratio of all is in the central section (431 per 1,000).

Comparing the disease and defect rates in these different sections for the different principal diseases, we find the highest ratio for pulmonary tuberculosis in the Indian section, the lowest in the central section. On the other hand, venereal disease is commoner in the central section and least common in the Indian section. Defective vision is commoner in the Indian section and least common in the central section, and the same is true of blindness in one eye. Otitis media is commoner in the central section and least common among the Russians. Defective hearing and hypertrophic tonsillitis are each most



frequent among the Russians and least so among the Indians. Valvular diseases of the heart are commonest in the Indian section and least so in the central section. Varicocele and varicose veins, defective and deficient teeth, hernia, and flat feet are commonest in the Russian section and least abundant among the Indians. More of the Indians, however, are underweight, and the Russians less so. Cryptorchidism is commoner among the Russians and least common among the Indian population. More in the Russian section were designated as generally unfit for military service than in the Indian section.

41. *Tennessee*.—This State is divided into three sections. Section 1, chiefly in the Mississippi Valley, includes 44 per cent negroes; section 2 is a great central agricultural region with 22 per cent negroes; section 3 includes mountain whites.

These three sections will be designated, respectively, Mississippi, central, and mountain section. The total defects found in the mountain white section give a ratio of 574 per 1,000; in the central section, 540 per 1,000; and in the Mississippi section, 494 per 1,000, despite the excess of Negroes in that section.

A comparison will now be made between the incidence of the principal defects in these three sections. Pulmonary tuberculosis is commonest in the central section and rarest in the valley section. Venereal disease is commonest in the Mississippi section and rarest in the central section. Curvature of the spine, on the contrary, is commonest in the central section and rarest in the valley. Goiter, epilepsy, and mental deficiency are commonest in the mountain section and rarest in the valley. Defective vision is commonest in the central section and rarest in the valley. However, enucleation of the eye and blindness in one or both eyes are commonest in the valley section and least common in the mountains. Otitis media is commonest in the valley and least frequent in the mountains. Tonsillitis is commoner in the mountains and less frequent in the valley. Valvular diseases of the heart are commonest in the central district. Hemorrhoids, varicocele and varicose veins are far commoner in the mountains and least so in the valley and the same is true of defective and deficient teeth. On the other hand, hernia and enlarged inguinal rings are found more frequently in the valley and less frequently in the central section. Defects of the appendages are commonest in the central section and found least in the mountains, although enucleation of the eyes is commoner in the mountains than elsewhere. Flat feet are commoner in the valley and least frequent in the central region. Deformities of the hand and fingers are commonest among the mountaineers. Deformities of the extremities are least frequent in the valley. More in the central section were found underweight and fewest in the valley. Cryptorchidism was commoner in the mountain section than elsewhere in the State. More of the mountaineers were diagnosed as generally unfit for military service than those of the other sections.

42. *Texas*.—The State of Texas is divided into five sections. Section 1, includes a broad zone along the Rio Grande River. This contained, in 1910, 17 per cent Mexicans, and included the cities of San Antonio and El Paso. Section 2 comprises the largest part of the population of Texas with, however, a density of only 17 inhabitants per square mile. These are 78 per cent native white of native parents. Section 3 is the region about Austin where there is a density of popula-

tion of about 33 inhabitants per square mile and 28 per cent of the population is colored. Section 4 includes the coastal region with prevailingly native population of which about 27 per cent is Negro. Section 5 includes certain counties in which over half of the population is Negro. These sections will be referred to as Mexican, agricultural white, central, coastal, and Negro.

The relative incidence of the principal diseases in these different sections will now be considered. Pulmonary tuberculosis is commonest in the Mexican section and least so in the Negro section. Venereal diseases, on the contrary, are commonest in the Negro section and least so in the Mexican. Curvature of the spine is commonest in the central section and least so in the Negro section. Arthritis is commonest in the coastal section and least so in the central section. Obesity is commonest in the agricultural white section and least in the Negro. Epilepsy is commonest in the agricultural section and least so in the central one. Mental deficiency is commonest in the central section and least so in the coastal region. Defective vision is commonest in the great agricultural section and least so in the Negro section. There is relatively more trachoma in the great agricultural section and least on the Mexican border. Otitis media is commonest in the agricultural section and least so in the Negro section, but there are relatively more with defective hearing on the coast than there are in the Negro section. Hypertrophic tonsillitis is commonest next to the Mexican border and rarest in the central section. Valvular lesions are commonest next to the Mexican border. Varicose veins are found especially in the great agricultural section and least in the Negro section. Defective and deficient teeth are commonest on the coast and rarest in the central section. Hernia is relatively most frequent among the Negroes and least on the Mexican border.

Flat foot is commonest in the Negro section and least in the central section. Deformities of the extremities are found most commonly in the great agricultural section and more in that section were found to be underweight than in any other, while in the Negro section fewest were placed in this category. More cryptorchidism was found in the central section and fewest among the Negroes. The diagnosis, "generally unfit for military service," was applied to about twice as many in the agricultural section as in the coastal section; but the use of this term implies superficial examining.

The coastal section gave the largest defect rate (494 per 1,000), the Negro section came next (470 per 1,000), and the great agricultural section third (469 per 1,000), the Mexican section fourth (462 per 1,000), and the central section lowest of all (446 per 1,000). The characteristics of each of these sections may be briefly considered.

Section 1, with about one-fifth of the population Mexicans, showed the largest amount of pulmonary tuberculosis (possibly on account of the migration of persons with lung disease to this section) and the smallest amount of venereal disease. Other diseases of which there was an excess are deafness, strabismus, hypertrophic tonsillitis, valvular diseases of the heart, varicocele, enlargement of inguinal rings (but not hernia), and deficient height.

On the contrary, the following diseases and defects had the lowest defect rate of any section: Hemiplegia and apoplexy, disordered action of the heart, trachoma, hernia in strict sense, malunion of frac-



ture of lower extremity, loss of whole or part of upper extremity, bony ankylosis of joint, hallux valgus, loss of part of foot and defective physical development.

Section 2, the great agricultural section, gave an excess of the following defects: Epilepsy, deaf-mutism, defective vision (unclassified), trachoma, otitis media, hemorrhoids, varicose veins, malunion of fracture of lower extremity, shortening of lower extremity, deformities of extremities, deformities of chest, atrophy of muscle of lower extremity, underweight, and "general unfitness for military service." On the other hand, the following defects and diseases showed an exceptionally low ratio: Deformity of the feet not otherwise specified, underheight.

Section 3, the central section with its large proportion of Negroes and Germans, showed the following defects and diseases in excess of any other: Curvature of the spine, defective speech, mental deficiency, various psychoses, enucleation of the eye, mitral insufficiency, hydrocele, malunion of upper extremity, fibrous ankylosis of joint, and cryptorchidism. The following defects and diseases showed an exceptionally low rate: Arthritis, monoplegia, also some other minor paralyses, epilepsy, deaf-mutism, hypertrophic tonsillitis, defective and deficient teeth, loss of lower extremity, flat foot, deformity of chest.

Section 4, on the coast, showed the highest defect rate of the following defects and diseases: Arthritis, myopia, blindness in one eye and defective hearing, cardiac hypertrophy, tachycardia, defective and deficient teeth, bony ankylosis of joint, loss of part of foot, deformities of hand, and injury to and loss of fingers. On the other hand, the following diseases were exceptionally infrequent: Defective speech, mental deficiency, hemorrhoids, enlargement of inguinal rings, deformity of extremities, and atrophy of muscles of lower extremity.

Section 5, including the largest proportion of Negroes, showed an excess of the following defects: Venereal disease, paralyses (unclassified), disordered heart action, amblyopia, tachycardia, asthma, hernia, loss of whole or part of upper extremity, hallux valgus, flat foot, defective physical development. On the other hand, the following defects and diseases were relatively uncommon: Tuberculosis, obesity, deaf-mutism, defective vision, blindness in one eye, mitral insufficiency and valvular diseases in general, hydrocele, malunion of fracture of upper extremity, shortening of lower extremity, hand deformities, and underweight.

43. *Utah*.—This State is divided into two sections. Section 1 includes the great arid area with a very sparse population. Section 2 is more densely populated, being the region surrounding Salt Lake City and Ogden. Section 3 is the mining area of the northern part of the State. The mining area and section 2 contain a large proportion of recent immigrants. In section 2 there are about 11 per cent Scandinavians. The defect rate of the three sections is highest in section 2, surrounding the larger cities (665 per 1,000), and is least in the arid territory (524 per 1,000) and intermediate in the mining section (535 per 1,000).

The relative incidence of the leading diseases in these three sections will be briefly referred to. Section 1 will be referred to as the arid area, section 2 as lake area, and section 3 as mining area.



Pulmonary tuberculosis is commonest in the lake area and least common in the mining section. Venereal diseases are commonest in the lake section. Simple goiter is commonest in the mining section (26 per 1,000) and least common in the lake section, but conditions are reversed for exophthalmic goiter. There is more mental deficiency in the arid section and least in the lake section. Defective vision is about equally common in the three sections, and the same applies to blindness in one eye. Otitis media is commonest in the lake sections and defective hearing in the arid region. Tonsillitis is commonest in the lake region and least so in the mining section. Valvular diseases of the heart are commonest in the lake section. Defective and deficient teeth are commonest in the mining region. Hernia and inguinal rings find their largest ratios in the arid section and flat feet its maximum in the lake region.

44. *Vermont*.—The State of Vermont is not divided into sections. The relative frequency of defects in this State may be found by consulting the Tables Nos. 1 to 76, inclusive.

45. *Virginia*.—Virginia is divided into four sections. Section 1 includes the east shore and the peninsula of Virginia. This contains about 44 per cent Negroes. Section 2 is the coastal plain region of the State, including about 50 per cent Negroes and the city of Richmond. Section 3 is the upland region, with only 33 per cent Negroes, and section 4 includes the mountain whites. These four sections will be designated maritime, Negro, upland, and mountain.

The relative frequency of the leading diseases and defects in these sections may be briefly given. Pulmonary tuberculosis is commonest in the Negro section and least common in the maritime section. Venereal diseases are commonest in the maritime section and least in the mountains. Curvature of the spine occurs especially in the mountains and least on the coast. Arthritis is commonest on the coast and least in the uplands. Exophthalmic and simple goiters are both commonest in the mountains and least common in the coastal section; the same is true of epilepsy. Mental deficiency is commonest in the upland section and there is less of it in the maritime section. The coastal region has the highest proportion of defective vision, but this is better in the upcountry and mountains. Otitis media is commonest in the upland and least in the coastal section. Defective hearing, however, is commonest on the coast and least in the Negro section. Hypertrophic tonsillitis is commonest in the mountains and least on the coast. Valvular diseases of the heart seem to be commonest in the Negro section. Cardiac hypertrophy is also commonest here. Varicose veins are commoner in the upland and rarer on the coast. Functional cardiac disorders prevail in the upland. Defective and deficient teeth find their maximum rate in the upland and the minimum rate on the coast. Hernia is markedly commoner in the maritime district and least in the upland, but adding together hernia and enlarged inguinal rings there is an excess among the mountaineers. Flat feet are especially common in the maritime section and found least in the mountains. Deformity of the fingers are more apt to occur in the coastal region and least so in the upland, but deformity of extremities occur especially in the Negro section. The highest rejection rate for underweight is in the upland and the lowest in the mountains. For underheight the maximum rate is

on the coast and the minimum in the mountains. Cryptorchidism occurs more commonly in the uplands and least commonly among the Negroes.

Of the four sections, the largest defect rate is found in the Negro section (760, one of the highest in the United States), the next in the maritime section (759), next in the upland (718), and the least in the mountain section (712). In section 1 we find that the following defects and diseases have the highest defect rate: Venereal diseases, arthritis, defective vision, enucleation of eye, defective hearing, hernia, malunion of fracture of lower extremity, hallux valgus, pes planus, loss of one or more fingers, and underheight. On the other hand, the following defects and diseases have the lowest ratio in this section: Pulmonary tuberculosis, curvature of the spine, exophthalmic and simple goiter, epilepsy, deafness, mental deficiency, blindness in one eye, otitis media, rhinitis, valvular diseases, cardiac hypertrophy, varicose veins, tachycardia, defective and deficient teeth, malunion of fracture of upper extremity, loss of whole or part of lower extremity, bony ankylosis of joint, deformity of chest, defective physical development, and general unfitness for military service.

Section 2, the Negro section, showed an excess of the following diseases and defects: Tuberculosis, deafness, sinusitis, valvular diseases, cardiac hypertrophy, tachycardia, loss of whole or part of extremities, hammer toe, hand deformity due to injury, deformities of upper and lower extremity, atrophy of muscles of lower extremity. On the other hand, the following defects are least common in this section: Defective hearing, diseases of the tonsils other than tonsillitis, varicocele, functional cardiac disorders, enlarged inguinal rings, malunion of fracture of lower extremity, metatarsalgia, and cryptorchidism.

Section 3 shows the highest rate of the following defects and diseases: Mental deficiency, blindness in one eye, otitis media, varicose veins, functional cardiac disorders, defective and deficient teeth, fibrous ankylosis of joint, pronated foot and undistributed diseases of the bones and organs of locomotion, defective physical development, underweight and cryptorchidism. The following defects have the lowest rate here: Arthritis, myopia, enucleation of eye, sinusitis, hernia, shortening of lower extremity, loss of fingers, and deformities of lower extremity.

Section 4, including the mountain whites, shows the highest ratio in the following defects: Curvature of the spine, goiter, hypertrophic tonsillitis, varicocele, malunion of fracture of upper extremity, shortening of lower extremity, pes cavus, deformity of foot, metatarsalgia, deformity of chest, and "general unfitness for military service." On the other hand, the following diseases and defects showed the lowest defect rate of any section: Venereal diseases, defective vision (undistributed), mitral insufficiency, loss of whole or part of upper extremity, hammertoe, hallux valgus, pes planus, deformities of hand, deformity of upper extremity, atrophy of muscle of lower extremity, underweight, and underheight.

46. *Washington.*—The State of Washington is divided into three sections. Section 1 includes the southern coastal region and certain eastern counties. Section 2 includes Puget Sound area, populated by a large proportion of foreign whites, especially Scandinavians. Sec-

tion 3 includes the mountain area with a very sparse population. These three sections will be designated briefly as: Arid, Puget Sound, and mountain. Of the three sections the mountain area has the highest defect rate (734 per 1,000), Puget Sound next (677 per 1,000), and desert last (634 per 1,000). We will consider the relative frequency of the principal diseases in these three sections.

Tuberculosis is commonest in the mountains and least in the desert, perhaps because of the migration of persons with the disease to the mountains. Venereal diseases are commonest in the mountains and least so in the desert section. Curvature of the spine is commonest in the mountains and least in the Sound district. Exophthalmic goiter is much commoner in the mountains and least in the desert region, whereas simple goiter is commonest in the Sound section and least in the desert. Mental deficiency is commonest in the mountains and least in the Sound area. Other psychoses (undistributed) are commonest in the Sound region and least in the mountains. Defective vision is commonest in the mountains and least in the Sound district, whereas blindness in one eye is commonest in the mountains and least so in the desert. Otitis media, perforated ear drum, and defective hearing are commonest in the mountain region and least in the desert. Hypertrophic tonsillitis is found especially in the Sound region and least in the mountains. Valvular diseases of the heart are found commonest in the arid region. Varicose veins and varicocele are found especially in the Sound district. Cardiac arrhythmias and tachycardia are found particularly in the mountains. Defective and deficient teeth are in excess in the mountains and least in the desert. Hernia and inguinal rings together are the commonest in the mountains and least frequent in the Sound region. Loss of upper extremity was commonest in the mountain region and least in the Sound district. Pes planus was commoner in the Sound district where the great cities lie and less in the mountains. Loss of one or more fingers was commonest in the desert and least in the Sound region. Deformities of the extremities are commonest in the mountain district and least in the Sound district. Defective physical development and underheight are excessive in the mountain and least is found in the Sound region. Underweight is excessive in the mountain but least in the desert region. Thus, as in other cases, the great city draws to it the physically most fit.

47. *West Virginia*.—This State is divided into two sections. Section 1 the mountain region and section 2 the agricultural region of the west. Both areas are occupied by over 85 per cent whites of native white parents. Of the two sections, the mountain section shows the largest amount of defect (672 per 1,000), while for the agricultural section the rate is only 611 per 1,000. Comparing these two sections with principal diseases and defects we find that tuberculosis is commoner in the plain region and venereal diseases are likewise commoner there. In the mountains are commoner: Curvature of the spine, exophthalmic and simple goiter, mental deficiency, defective hearing, hypertrophic tonsillitis, mitral insufficiency and valvular diseases in general, varicocele and varicose veins, tachycardia, defective and deficient teeth, bony ankylosis of joints, hammertoe, hallux valgus, flat foot, pronated foot, deformities of the hand, metatarsalgia, underweight, and underheight. On the other hand, the following defects are commoner in the agricultural section: Epilepsy, defective vision,



blindness in one eye, otitis media, asthma, hernia, loss of part or whole of extremity, loss of one or more fingers, deformity of extremity, defective physical development, and cryptorchidism.

48. *Wisconsin*.—This State is divided into four sections. Section 1 includes the northwestern section of the State characterized by over 22 per cent Scandinavians and about 14 per cent Germans. Section 2 constitutes the center of the State with its prevailingly German population (26 per cent). Section 3 includes Milwaukee and environs; and section 4 Lake Michigan counties north of Milwaukee. The latter contains about 27 per cent Germans and 7 per cent Austrian-Russians, besides 5 per cent Scandinavians. These four sections may be briefly designated as Scandinavian, German, Milwaukee, and Lake.

The relative frequency of the different diseases and defects in these four sections may be briefly considered for the commoner defects. Pulmonary tuberculosis is commonest in Milwaukee, and least common in the Scandinavian section. Venereal disease is commonest in Milwaukee and least common in the Scandinavian section. Curvature of the spine is commonest in the Lake counties and least in the Scandinavians. Arthritis is commonest in the German district and least in the Milwaukee section. Exophthalmic goiter is commonest in Milwaukee and least common among the Scandinavians and the reverse is the condition in simple goiter. Obesity is commonest in the Scandinavian and least in the Lake counties. Epilepsy is commonest in Milwaukee and least among the Scandinavians. Speech defect is commonest among the Germans and least in the Lake counties. Mental deficiency is commonest in the German section and least in Milwaukee. Myopia and defective vision (undistributed) are commonest in Milwaukee and least among the Scandinavians. Otitis media is commonest in Milwaukee and least in the Scandinavian region, while defective hearing is commonest in the German section and least in Milwaukee. Hypertrophic tonsillitis is commonest in the counties and least in the Scandinavian. The valvular heart defects and tachycardia are commonest in Milwaukee and least in the Scandinavians. Varicocele and varicose veins are commonest in the German section, and least so on the borders of Lake Michigan. Defective and deficient teeth are commonest in the Scandinavian and least in the German section, while hernia and enlarged inguinal rings exceed in the German section and are least in Milwaukee. Loss of whole or part of the extremities and shortening of extremities are least common in the Scandinavian and most common in the German section, while bony ankylosis is commonest in the German and least common in the Milwaukee region. On the other hand, fibrous ankylosis is commoner in the Milwaukee region and least common in the Lake region. Hallux valgus and hammer toe are less common in the Lake counties and less frequent in the interior. Pes planus is commonest in the German section and least common in the Lake counties. Other foot deformities are commonest in the German section and least so in the Lake counties. There is more loss of fingers in the German section and less in the Lake counties. Likewise there is more deformity of extremities in the German district and least in the Lake counties. Underweight and underheight are commonest in Milwaukee. There are fewest underweights in the Lake counties. There is the lowest proportion of underheight in the Scandinavian. Cryptorchidism is

commonest in the German district and least common in the Lake counties.

Section 1 contains the fewest defects of any of the sections of the State, namely, 534 per 1,000.

The following diseases and defects have the highest defect rate in this section: Simple goiter, obesity, defective and deficient teeth, deformity of the chest and undistributed diseases of the bones and organs of locomotion.

On the other hand, the following diseases and defects have the lowest ratio: Pulmonary tuberculosis, venereal diseases, curvature of the spine, exophthalmic goiter, epilepsy, deafness, defective vision, otitis media, hypertrophic tonsillitis, valvular diseases of the heart, tachycardia, loss of extremities, fibrous ankylosis of joint, hallux valgus, underheight, and general unfitness for military service.

Section 2 had the largest proportion of physical defects, namely 610 per 1,000 men examined. The following diseases and defects showed the highest defect rate of any section of the State: Arthritis, defective speech, mental deficiency, defective hearing, varicocele and varicose veins, asthma, hernia, loss of upper and lower extremities and shortening of lower extremity, pes planus, deformity of foot, deformities of hand and fingers, deformities of extremities and cryptorchidism. On the other hand, the following defects and diseases showed the lowest defect rate: Defective and deficient teeth and pronated feet.

Section 3 showed next to the largest defect rate. This contains the city of Milwaukee. The following defects and diseases showed the highest defect rate in this section: Tuberculosis, venereal diseases, exophthalmic goiter, monoplegia, epilepsy, defective vision, otitis media, valvular diseases of the heart, tachycardia, malunion of fracture of lower extremity, fibrous ankylosis of joint, defective physical development, underweight and underheight. The following diseases and defects showed the lowest defect rate of any section: Arthritis, simple goiter, mental deficiency, blindness in one eye, varicose veins, hernia, bony ankylosis of joint, deformities of hand, undistributed diseases of the bones and organs of locomotion and general unfitness for military service.

Section 4 showed next to the lowest ratio of defects of the following diseases and defects: Curvature of the spine, deafness, blindness in one eye, hypertrophic tonsillitis, hammertoe and hallux valgus, pronated foot. On the other hand, the following defects and diseases showed the lowest defect rate: Obesity, monoplegia, defective speech, varicocele, malunion of fracture of lower extremity, pes planus, loss of one or more fingers, fracture of upper and lower extremity, deformity of chest, atrophy of muscle of lower extremity, defective physical development, underweight, and cryptorchidism.

49. *Wyoming*.—The State of Wyoming was not divided into sections. The relative defect rate of the different diseases and defects may be had by examination of Table 1-76.

#### G. THE DISEASES AND DEFECTS FOUND IN CONSOLIDATED GROUPS OF SIMILAR SECTIONS.

Many of the sections in the different States had certain important features in common, whether of leading occupation of the inhabitants,

of climatic and topographical features or of racial constitution of the population. Accordingly these similar sections were consolidated into larger groups and the distribution of the diseases and defects in each group is given in Tables XXXIV, XXXV, XXXVI. In this chapter it is proposed to consider the relative defect or disease rate in the different groups. These groups are for convenience classified into three series, viz: I. The occupational series. II. The physiographical series. III. The racial series. The composition of the series is shown in the following tables, A and B:

TABLE A.—*Consolidation of similar sections, the series, and their constituent groups.*

Series I. The occupational series:

- Group 1. Agricultural, north, native white, 73 per cent.
- Group 2. Agricultural, mixed, white, foreign and native.
- Group 3. Agricultural, south, native white.
- Group 4. Agricultural, Negro, 45 per cent plus.
- Group 5. Eastern manufacturers.
- Group 6. Commuter.
- Group 7. Mining.

Series II. The physiographic series:

- Group 8. Sparsely settled, not more than 3 per square mile.
- Group 9. Desert.
- Group 10. Maritime.
- Group 11. Mountain.

Series III. The racial series:

- Group 12. Mountain whites.
- Group 13. Indian, sparsely settled.

Series III. The racial series—Con.

- Group 14. Mexican, sparsely settled.
- Group 15. Native whites of Scotch origin.
- Group 16. Russian, 10 per cent plus.
- Group 17. Scandinavian, 10 per cent plus.
- Group 18. Finn, 10 per cent plus.
- Group 19. French Canadian, 10 per cent plus.
- Group 20. German and Scandinavian, over 10 per cent; plus 10 per cent.
- Group 21. German and Austrian, over 20 per cent.
- Group 22. German and Austrian, over 15 per cent.

TABLE B.—*Consolidation of similar sections; the groups and their composition out of sections.*

Group 1. Agricultural, native white, north native white, over 73 per cent north:

Illinois	3
Indiana	3
Iowa	2
Ohio	3
Pennsylvania	2

Group 2. Agricultural, mixed foreign and native white:

Colorado	4
Illinois	8
Indiana	2
Iowa	1
Kansas	2
Michigan	2
Nebraska	2
New Jersey	2
New York	7
Ohio	2
Pennsylvania	6
South Dakota	1
Vermont	1
Washington	1
Wisconsin	2

Group 3. Agricultural, native white, south:

Alabama	3
Arkansas	2, 3
Kentucky	2
Louisiana	3
Maryland	3
Mississippi	2
Missouri	1, 3
North Carolina	2, 3, 6
Oklahoma	1, 2
Tennessee	2
Texas	2, 4
Virginia	3
West Virginia	2

Group 4. Agricultural, Negroes, 45 per cent plus:

Alabama	2, 4
Arkansas	1
Georgia	2
Louisiana	1
Mississippi	1
North Carolina	4
South Carolina	2, 3
Tennessee	1



Group 4. Agricultural Negroes, 45 per cent plus—Continued.		Group 13. Indian, sparsely settled:	
Texas	5	Arizona	1
Virginia	2	New Mexico	1
Group 5. Eastern manufacturing:		Group 13. Indian, sparsely settled—Continued.	
Connecticut	2	Oklahoma	1
Massachusetts	2	South Dakota	3
New Hampshire	2	Group 14. Mexican, sparsely settled:	
New Jersey	1	Arizona	1, 2
New York	3	New Mexico	3
Ohio	1	Texas	1
Pennsylvania	5	Group 15. Native whites of Scotch origin:	
Rhode Island	1	Kentucky	2
Group 6. Commuter.		North Carolina	3
Illinois	1	Group 16. Russian, 10 per cent plus:	
New Jersey	1	Colorado	2
New York	1	Kansas	1
Group 7. Mining:		North Dakota	3
Alabama	1	Pennsylvania	3
California	2	South Dakota	2
Colorado	1, 3, 6	Group 17. Scandinavian, 10 per cent:	
Idaho	1	Michigan	1
Montana	1	Minnesota	1, 2, 3
Nevada	1	North Dakota	1, 2, 3
Pennsylvania	3, 4	South Dakota	1
Utah	3	Utah	1, 2
Group 8. Sparsely settled, not more than 3 per square mile:		Washington	2
California	3	Wisconsin	1, 2
Montana	2	Group 18. Finn, 10 per cent:	
Nevada	1	Michigan	1
New Mexico	2	Minnesota	3
Oregon	2	Group 19. French Canadian, 10 per cent:	
Utah	1	Maine	3
Wyoming	1	Massachusetts	2
Group 9. Desert:		New Hampshire	1, 2
Arizona	2	Rhode Island	1
Nevada	1	Group 20. German and Scandinavian, over 10 per cent; plus 10 per cent:	
New Mexico	2	Minnesota	1, 2
Group 10. Maritime:		South Dakota	1
Maine	2	Wisconsin	1, 2
Maryland	2, 4	Group 21. German and Austrian, over 20 per cent:	
Massachusetts	3	Illinois	1, 4
North Carolina	5	Indiana	1
Virginia	1	Minnesota	2
Group 11. Mountain:		Ohio	1
Arkansas	2	Group 22. German and Austrian, over 15 per cent:	
Massachusetts	1	Illinois	1, 4
Missouri	3	Indiana	1
Montana	1	Iowa	1
New Hampshire	1	Minnesota	2
New York	5, 8	Nebraska	1, 2
Washington	3	New Jersey	1
Wyoming	1	Ohio	1
Group 12. Mountain whites:		Pennsylvania	3, 5, 7
Kentucky	1	Wisconsin	1, 2, 4
North Carolina	1		
South Carolina	1		
Tennessee	3		
Virginia	4		
West Virginia	1		

## I. SERIES I.—OCCUPATIONAL SERIES.

## 1. GROUP 1.—AGRICULTURE: NORTH, NATIVE WHITE, OVER 73 PER CENT.

This group comprises five sections, as follows: Illinois 3, the agricultural section of the southern part of the State; Indiana 3, constituting the greater part of the State; Iowa 2, the southern two-fifths of the State; Ohio 3, essentially the agricultural area of the State; and Pennsylvania 2, the southern rural-area, "the garden of Pennsylvania" and counties immediately west of it.

1. *Pulmonary tuberculosis*.—In this group the ratio for pulmonary tuberculosis is 19.04. In respect to the incidence of this disease group 1 occupies a median position among the different groups of the occupational series. It is higher than the ratio for North agricultural mixed foreign and native white, but somewhat lower than the ratio for agricultural South native white.

2. *Veneral diseases*.—In respect to these diseases this group occupies again an intermediate position. There is more venereal disease in the northern native white agricultural regions than in the North foreign and native agricultural regions and less than in the native white agricultural regions of the South.

3. *Curvature of the spine*.—This defect has in this group a ratio of 6.40, which is the highest ratio for this defect in all the occupational groups. The ratio is 0.62 higher than that of the North agricultural areas of mixed foreign and native population and 1.5 higher than the group of agricultural area occupied prevailingly by Negroes.

4. *Arthritis*.—Here again this group occupies a median position, being exceeded by agricultural groups populated by mixed foreign and white in the North and by the southern agricultural groups, but it is in excess of the urban groups.

5. *Exophthalmic goiter*.—This has a ratio of 3.95. This is the highest ratio found in any of the occupational groups except the North agricultural group of mixed racial stocks. The reason for the high ratio in this group is doubtless because it includes a part of the area of the Northwest and the region about the Great Lakes that is characterized by a large incidence of exophthalmic goiter. The same relations that hold for exophthalmic goiter hold for simple goiter.

6. *Obesity*.—Obesity has a ratio of 2.12—a ratio that is exceeded only by the urban occupational groups. It exceeds strikingly the northern agricultural group of mixed racial stocks.

7. *Alcoholism*.—The ratio of this defect found is 0.25. It is exceeded only by group 6, that of commuters and in suburbs of great cities.

8. *Drug addiction*.—The ratio is 0.17, which is lower than that of any of the other groups of the occupational series except group 4, that of agricultural Negroes, which is also 0.17.

9. *Monoplegia*.—The result is 1.47, a median grade, being exceeded by the North agricultural sections of mixed stock and the eastern manufacturing and commuter sections. It exceeds the two agricultural groups of the South, native white and Negro, and the mining group.

10. *Epilepsy*.—The ratio of 6.66 is strikingly higher than that of any other group of the occupational series. The figure indicates that

two-thirds of 1 per cent of the men of military age from the agricultural areas of the North that are occupied by the largest proportion of native whites were found to be epileptic. This excludes, of course, the cases that have been already taken care of in institutions. Epilepsy constituted 12.6 per 1,000 of all of the defects found in this group. The agricultural group, that includes a much larger mixture of foreign blood, has a strikingly smaller ratio for epilepsy.

11. *Defective speech*.—This group has the highest ratio, 1.51, of any section of the occupational series. Defective speech is strikingly commoner in this group than in the group which includes a much larger proportion of recent immigrants.

12. *Deaf-mutism*.—This has a ratio of 1.16, the highest of any of the groups. This exceeds by 35 per cent the amount of deaf-mutism found in the agricultural group with a larger proportion of recent immigrants.

13. *Deafness*, more or less complete, as contrasted with defective hearing, is found in this group in a ratio of 1.43, with one exception the highest of the occupational series. It is exceeded by the South native agricultural group (1.50). It is more than 10 per cent in excess of the North agricultural group with a larger proportion of foreign stock.

14. *Deformities or diseases of the spine* not further classified are recorded in 1.6 per 1,000 of the men examined. This is the highest ratio of any group of the occupational series and about 5 per cent in excess of the north agricultural group of mixed origin.

15. *Mental deficiency* has a ratio of 18.5. This is exceeded by the rate of agricultural regions of the South, both native white and Negro. It is about 15 per cent in excess of the north agricultural area occupied by a large proportion of recent immigrants.

16. *Dementia precox*.—This was found in a ratio of 0.66, a ratio which is exceeded in the manufacturing and commuter groups. It is, however, a larger ratio than is found for the north agricultural group of mixed racial stocks.

17. *Astigmatism*.—This defect was recorded in 0.86 per 1,000 men. In this respect this group occupies a median position among the other occupational groups.

18. *Myopia*.—Myopia was found in a ratio of 2.02, a rate exceeded only by the two urban groups, Nos. 5 and 6.

19. *Defective vision (cause not stated)* occurred in the ratio of 25.45. This is the highest ratio recorded, excepting for the two urban groups.

20. *Strabismus*.—This occurred in the ratio of 1.09, a ratio which is exceeded in the southern white agricultural group and the eastern manufacturing group. It is 20 per cent greater than in the agricultural group, having a larger proportion of recent immigrants.

21. *Trachoma*.—This is found in the ratio of 1.93, a ratio which is exceeded only in the southern white agricultural group. This simply confirms what appears from other parts of this report, that trachoma is prevailingly a rural disease, despite the fact that much of it is brought into the port of New York by recent immigrants and remains in congested areas of the East.

22. *Amblyopia*.—This was found in a ratio of 0.87. This is the smallest ratio for this disease in the occupational group excepting in the Negro group of the South.



23. *Choroiditis*.—This occurs in a ratio of 0.41, the highest ratio of any group in the occupational series.

24. *Enucleation of the eye*.—This defect, which may have followed upon a disease destroying the function of the eye or may be subsequent to an accident, was found in the ratio of 1.74, a ratio which is exceeded only by that of the native white agricultural group of the South.

25. *Blindness in one eye* is recorded in the ratio of 5.76, a ratio which is exceeded only by the agricultural areas, both white and Negro, of the South. Blindness in both eyes was found in the ratio of 0.91, the highest ratio of any section of the occupational group. Blindness in both eyes was relative much less commonly recorded by medical examiners than blindness in one eye, probably because a large proportion of cases of blindness in both eyes is in institutional care and was unable to report for physical examination.

26. *Otitis media*.—This occurred in a ratio of 6.89, the highest ratio recorded for any group excepting the urban groups.

27. *Defective hearing*.—This is recorded in a ratio of 5.80, the highest ratio recorded for any group excepting the eastern manufacturing group. It is about 10 per cent higher than that of the north agricultural group, with a large proportion of recent immigrants.

28. *Hypertrophic tonsillitis*.—This was recorded in the ratio of 22.84. This constituted numerically one of the most important diseases recorded, constituting over 4 per cent of the defects found in the military population. The ratio in this group occupies an intermediate position in the occupational series; it is only about two-thirds of that in the mining group.

29. *Endocarditis*.—Endocarditis was recorded in a ratio of 0.94 per 1,000. This occupies a median position in the present group.

30. *Aortic insufficiency*.—This is recorded in a ratio of 1 per 1,000 which occupies an intermediate position among the various groups of the occupational series. Mitral insufficiency, mitral stenosis, and valvular lesions, unclassified, all have a median ratio. In general, one may say that the valvular diseases of the heart, including also cardiac hypertrophy, are larger in the urban and mining sections and, on the whole, are relatively less common in the agricultural groups. This may possibly be due to the circumstance that local board examiners in rural districts were less experienced in detecting heart defects than were those in large cities.

31. *Hemorrhoids*.—These were found in a ratio of 1.06, which is the lowest of all of the groups of this series excepting the north agricultural group of mixed population. Varicocele and varicose veins similarly occupy the same median position. Functional cardiac disorders were found in the ratio of 0.83, which is likewise an intermediate ratio. Tachycardia occurred in the ratio of 4.83, the highest of all the groups excepting the North agricultural group, with a larger proportion of recent immigrants.

One may conclude, then, that weak-walled veins are commoner among the urban residents than among the agriculturists and that the proportions of them increase in the population as there is a greater mixture of foreign stock, especially of Scandinavians and other tall races. The condition that leads to tachycardia, on the other hand, is especially common in rural districts.

32. *Asthma* was found in a ratio of 2.33, which is strikingly less than that of the North agricultural groups of mixed origin and strikingly larger than the more urban groups, Nos. 5 and 6.

33. *Defective and deficient teeth* are found in the ratio of 9. This ratio is the lowest of all the occupational groups excepting the southern white agriculturists. It is about two-thirds the rate for the agricultural groups of mixed origin. It would appear, then, that the white agricultural stock, both North and South, is characterized by better teeth than other occupational groups.

34. *Hernia* is found in the ratio of 20.29, which is exceeded only by the East manufacturing group and is 10 per cent less than the North agricultural group of mixed origin. Enlarged inguinal rings occur in the ratio of 14.81, which is exceeded only by the negro and white agricultural areas of the South.

35. *Hydrocele* is recorded in the ratio of 1.10, which is the highest ratio of any group of this series excepting that of southern white agriculturists.

36. *Malunion of fracture* of upper and lower extremities together is found in the ratio of 3.62, the lowest rate of any of the groups of this series excepting the commuter group. It is only slightly less than that of the East manufacturing group. Urban groups in general have greater facilities for prompt surgical attention, securing a better treatment of fractures.

37. *Shortening of lower extremity* was recorded in about 3.57 per 1,000 of the men examined. The ratio for this defect is greater for this than any other group of the occupational series excepting the East manufacturing group.

38. *Loss of whole or part of upper extremity* was found in the ratio of 2.33, a ratio that is exceeded only by the two agricultural groups of the South. On the other hand, loss of whole of lower extremity, with a ratio of 4.15, is markedly in excess of that of any other section.

39. *Bony ankylosis of joint* is recorded in 3.61 per 1,000 of the men examined. This rate occupies a median position in the series. Fibrous ankylosis of the joint is found in a ratio of 2.77, which is exceeded by the southern agricultural groups and by the mining groups. Contracture of muscle, fascia, tendon, or sheath was recorded in the ratio of 0.93, a ratio which is fairly low, these defects being found, however, in still less degree in the North agricultural areas, containing a large proportion of recent immigrants, and the commuter areas.

40. *Hammer toe* shows a ratio of 1.69 and hallux valgus of 4.10. Both of these ratios are median. *Pes cavus* has a ratio of 1.33, which is exceeded by the southern whites and by the mining group. *Pes planus* was found in the ratio of 95.49 of the men examined. It constituted the most numerous defect found, being 18 per cent of all defects recorded in the group. It occupies a relatively low position in comparison with the other groups of this series, but is greater than the ratios for the agricultural areas of the South for the negro or white.

41. *Deformities of hand*, resulting from old injury or infection, were recorded in a ratio of 2.36, which stands in an intermediate position among the different groups. Loss of one or more fingers was found in the ratio of 5.45, which is again a median ratio. Metatarsalgia was found in the ratio of 3.10, which is exceeded only in the

mining group. Talipes was found in the ratio of 1.04, the greatest ratio of any group in this series. Deformities of upper and lower extremities, added together, were found in 7.70 per 1,000 men examined, which is slightly greater than the north agricultural group of mixed origin, but is exceeded by the south agricultural groups. Deformity of chest was found more frequently in this group than in any other.

42. *Atrophy of muscle* of the lower extremity was found in the ratio of 2.80, the highest of any group of this series.

43. *Defective physical development* was recorded in the ratio of 2.31, which is the lowest of any group of this series, excepting the commuter group. *Deficient chest measurement* was found in the ratio of 1.06, which is higher than in any group of the series, excepting the east manufacturing group, which includes a large proportion of the small races from southeastern Europe.

44. *Underweight* is recorded in 26.4 per 1,000 men examined, a ratio which exceeds all others excepting the north agricultural group of mixed origin, the commuter group, and that of mining. *Underheight* is found in a ratio of 2.48 per 1,000 men, a ratio which is exceeded only in the two urban groups of this series.

45. *Cryptorchidism* is found in the ratio of 2.46, which exceeds all other groups excepting the two agricultural groups of the South.

46. *Cleft palate* is found in the ratio of 0.74, which exceeds all other groups in this series.

Of men recorded as "generally unfit for military service," 3.94 per 1,000 were placed in this group, which is the lowest rate of all excepting the commuter and mining groups.

The total of defects found constituted 529.2 per 1,000 of the men examined, a ratio which exceeds only the north agricultural group of mixed origin and the south agricultural group. The agricultural groups thus show fewer defects than the manufacturing and commercial and mining groups, and of these the north agricultural group of native whites showed the largest proportion of defects, excepting that of the negroes of the agricultural areas of the South. Group I exceeds all others in congenital defects, such as curvature of the spine, epilepsy, defective speech, deaf-mutism, deformities of the spine (not further classified), muscular atrophy, and cleft palate.

## 2. GROUPS 2-4, OTHER AGRICULTURAL GROUPS.

The remaining white agricultural areas may be briefly considered. Of these the smallest proportion of defects is found in the southern group (516.4 per 1,000), as contrasted with 526.8 per 1,000 of the northern group of mixed origin, perhaps because the former group was less critically examined. Contrasting these two groups, we find that there is more tuberculosis in the southern than in the northern agricultural groups. Of venereal diseases, there are much more—more than twice as much as in the northern group of mixed origin. Of curvature of the spine, there is least found in the southern group, and much less of goiter, as well as of obesity. On the other hand, arthritis is commoner in the southern group, probably associated with venereal infection. The minor paralyses are apparently slightly less common in the southern agricultural group than in the two



northern groups. Epilepsy is found least in the northern group of mixed origin. Hysteria, on the other hand, finds its maximum in that group. Defective speech, deaf-mutism, deafness, are all relatively uncommon in the northern mixed group.

Constitutional psychopathic States are relatively more common in the northern mixed group than any other. Mental deficiency finds its minimum in the northern mixed group, but manic-depressive psychosis and other psychoses predominate there. Astigmatism was less often recorded in the south agricultural group and the same is true of defective vision in general, and myopia. However, strabismus and cataract were found most commonly in the South. Trachoma is found most frequently in the southern native group among all groups of the occupational series, as the South seems to be the home for it, and the negroes are more resistant and are less apt to become affected by it than the whites. Amblyopia finds its maximum in the southern native white agricultural stock. Enucleation of the eye and blindness in one eye are also commonest here. On the other hand, otitis media and defective hearing are less common among the south agricultural whites than the north agriculturists.

Hypertrophic tonsillitis is commoner in the south white agricultural group than in the northern groups, and in general the valvular diseases of the heart seem to be less common in this group. Hemorrhoids find a maximum here, varicocele a minimum. Relatively fewer cases of varicose veins were found than in the mixed agricultural population of the north. Relatively little tachycardia and functional heart murmurs were found in the south agricultural group.

Defective and deficient teeth were rarer in the south agricultural group than in any other of the occupational series. Of hernia and enlarged inguinal rings, there is less than in the northern agricultural groups.

Malunion of fractures of extremities is found more commonly in the south agricultural white group than in the northern groups, though not so frequently as in the south negro groups. Bony and fibrous ankylosis of joints are both especially common in the southern whites, but nearly all the feet defects are markedly less common in this group. Deformities of hand due to old injury or infection are slightly more common among the agricultural whites of the South than in the northern sections, but fewer cases of loss of one or more fingers were found; and atrophy of muscles of the extremities is much less common. Defective physical development was recorded more often in the white southern than in the two northern groups, and underweight similarly was somewhat more common, but fewer were found underheight than in any other group of the series. Cryptorchidism was relatively less common than in the northern groups, but general unfitness for military service was more frequently designated than in the other groups, possibly because the local examiners were less careful to particularize.

Contrasting, now briefly, the native whites and the negroes of the South, we find that the negroes exceed in the following defects:

Pellagra, each venereal disease (about double), benign tumors, arthritis, tabes dorsalis, mental deficiency, hysteria, dementia precox, psycho-neuroses, manic-depressive psychosis, endocarditis (and in general valvular diseases of the heart), cardiac hypertrophy, cardiac

dilatation, myocarditis, aneurysm, arterio-sclerosis, diseases of the lymphatic system, cardiac murmurs not organic and functional cardiac disorders, tachycardia and unclassified diseases of the circulatory system. Thus, for diseases of the circulatory system, the negro areas have in general larger rates than the white. Of respiratory diseases, the rate for negro exceeds the white agricultural area, in the case of bronchitis, asthma, emphysema, and unclassified diseases of the respiratory system—that is, practically all of the diseases of the respiratory system, excepting tuberculosis, which was found in slightly less proportion in the more strictly negro territory.

Of the group of defective and deficient teeth the ratio for negroes was 20.50 as contrasted with 15.3 of the white agriculturists. However, they showed only half as much pyorrhea. Hernia was commoner, though enlargement of inguinal rings was less so and the total is slightly less in negroes than in the whites. Fistula in ano, diseases of the bladder and of the urethra and hydrocele, are also commoner among the negroes. The same is true of keloid, painful scars, cicatricial contracture, cicatricial deformities, malunion of fracture of lower extremity, fibrous ankylosis of joint, relaxed ligaments of joints, chronic dislocation other than hand, contracture of muscle fascia, tendon or sheath, hallux valgus, pronated feet, loss of part of foot, deformities of hand, resulting from old injury or infection, deformity of lower extremity, defective physical development, underheight, and bullet or other recent wounds.

On the other hand, the following defects and diseases were markedly commoner in the white agricultural group of the South than in the Negro group.

Pulmonary tuberculosis, suspected tuberculosis or weak lungs and tuberculosis of other organs, curvature of the spine, exophthalmic and simple goiter, obesity, alcoholism, drug addiction, the minor paralyses, deaf-mutism and deafness, deformity or diseases of spine not otherwise classified, all important diseases of the eye and their annexa, with the exception of keratitis and perhaps choroiditis. Likewise all important diseases of the ears and, for the most part, of the nasal fossæ; all important diseases of the throat, hemorrhoids, varicocele, varicose veins, cardiac arrhythmias, shortening of lower extremity, loss of lower extremity in whole or part, pes cavus, pes planus, metatarsalgia, talipes, atrophy of muscle of extremities, defective chest measurement, under weight, cryptorchidism, hypospadias, cleft palate, and hare lip.

From the preceding table, based on examinations at the local boards and at the mobilization camps, there is revealed a striking difference in the incidence of certain diseases and defects in the southern groups which have a prevailing white population, as contrasted with those which have a larger proportion (45 per cent or more) of Negroes. Excepting for venereal diseases, mental deficiency, possibly certain psychoses, heart diseases and general respiratory diseases apart from tuberculosis, malunion of fractures, fibrous ankylosis of joint, and deformities or mutilations of extremities, the whites have a larger proportion of defects than the Negroes.

Especially striking is it that over 10 per cent more tuberculosis is recorded for the native whites than for Negroes. This might be accounted for by assuming, as is possible, that the examiners at local boards in the Negro sections were inferior to those in the native

white sections, but if this is so, it only strengthens the striking fact that there is a greater amount of organic and functional heart disorder found in the Negroes than in the whites. If, as is so frequently believed, the course of pulmonary tuberculosis is much more rapid in the Negroes than in the whites, it would serve partly to explain the smaller number of Negroes found at the time of examination with tuberculosis than in the case of whites.

From the Morbidity Statistics of the Bureau of Census, it appears that the death rate from tuberculosis is 176 per 1,000 in the Negro population and in the white population only 98. Thus we have the remarkable and at first sight self-contradictory result that the death rate from tuberculosis is much higher in the Negro than in the whites and that the morbidity rate at any moment is less. This apparent contradiction, however, is cleared up if we assume, following the experience, that the period of morbidity from tuberculosis is much briefer in the Negro than in the whites. Perhaps, therefore, the statement may be criticized "relatively to other causes, tuberculosis is, however, much more prevalent in the Negro population than in the whites."<sup>1</sup> In this connection may be cited also the statistics of the Report of the Surgeon General of the Army, 1918, Table XV, which shows that there were nearly three times as many admissions to sick report for tuberculosis of the lungs from colored as from white troops in relation to the mean strength of these troops. There is one other fact to be considered. It is frequently stated that mulattoes are much less susceptible than full blooded Negroes. It is, therefore, possible that it is because the density of the mulatto population is greater outside of the "black belt" than inside that the amount of tuberculosis found is greater outside of the black belt than inside.

### 3. THE MANUFACTURING GROUP.

Group 5 includes the eastern manufacturing section, namely, Connecticut 2 (Connecticut River Valley); Massachusetts 2, including Connecticut and Merrimack River Valleys and streams tributaries to them; New Hampshire 2, including the Merrimack River and its tributaries; New Jersey 1, including Newark, Jersey City, and the district around the Hackensack and Passaic Rivers; New York 3, including the lower Mohawk Valley and upper Hudson River; Ohio 1, including the densely populated area along Lake Erie, with the large cities of Cleveland and Toledo; Pennsylvania 5, including the steel factories of the Conemaugh River; and the State of Rhode Island. These sections are for the most part densely populated, but exclude the large cities.

### 4. THE COMMUTER GROUP.

Group 6 includes suburban areas around New York and Chicago, namely, Illinois 1, being the counties of Cook (outside of Chicago), Lake, Kane, and Du Page; New Jersey 1, which also includes extensive manufacturing towns; and New York 1, including Long Island, outside of Greater New York, and three counties north of New York City on the east side of the Hudson River. This group,

<sup>1</sup> Negro population, 1790-1915, Department of Commerce, Bureau of the Census, Washington, 1918, p. 313.



which is called the commuter group, includes an unusually large proportion of home makers who prefer to live outside of the cities: It is possible that the introduction of section 1 of New Jersey, which includes considerable manufacturing areas also, somewhat obscures the differences between the commuter and manufacturing groups.

#### 5. THE MINING GROUP.

Finally, group 7 includes 11 mining sections, namely, Alabama 1, with the iron and mining industry about Birmingham and the mountains of the northeastern part of the State; California 2, including the coal mining in the Sierra Mountains; Colorado 1, 3, and 6, including the lead and silver mining districts; Idaho, Montana 1, Nevada, Pennsylvania 3, including the anthracite coal mines of eastern Pennsylvania; Pennsylvania 4, including the coal mines of the southwestern corner of the State, and Utah 3.

It will be worth while to compare these three groups with each other and with the agricultural white and Negro groups.

In these three groups (5, 6, and 7) tuberculosis has the lowest ratio in the mining group and the highest in the eastern manufacturing group, but in all of these the disease is less common in men of military age than among the agricultural whites of the South, or in the native white agriculturists of the North.

Venereal diseases find their lowest ratio in the commuter of suburban group, which for syphilis is 3.13. The ratio is only 3.72 for the eastern manufacturing group and 9.79 for the mining group. The mining group shows the highest rate of syphilis, as of all venereal diseases. The rate for venereal diseases is the highest in the mining group of all groups of the occupational series, excepting the two southern agricultural groups.

Cancer and other malignant tumors give a ratio of 1.43 in the case of the eastern manufacturing group, which is by far the largest ratio of any of the occupational groups. This high ratio is largely due to the inclusion of Massachusetts 2, with its ratio for cancer of 5.04, as shown above, and New Hampshire, with a ratio of 0.47. These relatively high rates are only partly offset by New York 3, with no cases.

The following additional defects and diseases find a minimum rate in the commuter group: Arthritis, "muscular rheumatism," paralysis (unspecified), neuritis, asthma, pyorrhea, malunion of fracture of extremities, fibrous ankylosis of joint, pes cavus, deformities of hand resulting from old injury or infection, loss of one or more fingers, deformity of upper and lower extremity, defective physical development, and bullet or other recent wounds. Thus, the commuter group has many points of superior physique and is characterized by an absence of mutilations and deformities of the appendages.

On the other hand, the following diseases and defects occur in a higher ratio in the commuter group than any other groups: Hemophilia, drug addiction, neurosis, deaf-mutism (slightly fewer than in group 1), myopia, cataract, otitis media (only slightly greater than group 5), aortic insufficiency, combined lesions, aortic and mitral.

The mining section shows an excess of the following defects and diseases: Goiter simple, hypertrophic tonsillitis (33.58 per 1,000),

malunion of fracture of upper extremity and of lower extremity, hammer toe, hallux valgus, pes planus, pronated foot, loss of part of foot, and metatarsalgia. Thus the mining group shows an excess of deformations and mutilations largely due to accident.

Comparing the eastern manufacturing with the commuter group, we find that, on the whole, they resemble each other rather closely. However, there is an excess of the following defects in the manufacturing group over the commuter group: Tuberculosis, cancer and other malignant tumors, arthritis, alcoholism, paraplegia, dementia precox, astigmatism, myopia, defective vision cause not stated, defective hearing, cardiac hypertrophy, valvular lesions unclassified, varicocele, varicose veins, defective and deficient teeth, loss of whole or part of lower extremity, fibrous ankylosis of joint, contracture of muscle fascia, tendon and sheath, hallux valgus, pes cavus, pronated foot, deformities of hand resulting from old injury or infection, loss of one or more fingers, metatarsalgia, deformity of lower extremity, atrophy of muscle of lower extremity, defective physical development, deficient chest measurement, underweight, underheight, cryptorchidism, and "general unfitness for military service."

The large number of important defects in which the manufacturing region shows a higher ratio than the commuter region is not to be ascribed merely to the conditions or life in manufacturing communities, but it is to be ascribed also, probably in a larger degree, to the fact that there are living in these manufacturing areas recent immigrants from southeastern and eastern Europe who show special liability to these defects. In other words, the difference is fundamentally a racial one. This is borne out by the high proportion of individuals of underheight and underweight and by the large amount of defective vision, a condition so markedly present in the Polish Jews as to be one of their racial characteristics.

## SERIES II. PHYSIOGRAPHICAL SERIES.

1. *Composition of the series.*—This includes four groups as follows: Group 8, the sparsely settled group with not more than three persons per square mile; group 9, desert (also naturally sparsely settled); group 11, mountain having close relations with the mining group; and group 10, maritime or seaboard. In these districts likewise the population is much sparser than in the manufacturing districts, but not so sparse, for the most part, as in the desert and sparsely settled regions.

2. *Group 8—Sparsely settled.*—This group with not more than three inhabitants per square mile. These sections are likewise, for the most part, arid, but not so extreme in group 9, the desert section. Group 8 includes California 3, the San Bernadino Desert, including Death Valley and surrounding mountains; Montana 2, including the eastern half of the State; Nevada (undivided); New Mexico 2, including the central and eastern two-thirds; Oregon 2, including the southern and eastern four-fifths; Utah 1, including that part of the State which lies outside of the Salt Lake Valley and the mountains of the north; Wyoming, undivided.

3. *Group 9—Desert.*—This includes Arizona 2, being the southern half of the State; Nevada, undivided; New Mexico 2, the central and eastern part of the State.



4. *Group 10—Maritime.*—This group is characterized not only by its proximity to the sea, but also by its division into islands and peninsulas, which are centers of consanguineous mating, which tends to produce in the population an excess of so-called Meridelian recessive traits. This group includes the following sections: Maine 2, including the mountain islands and numerous other island deserts lying along the coast from Sagadahoc County to Hancock County, inclusive; Maryland 2, including the east shore of Chesapeake Bay with numerous peninsulas continuous with Virginia 1, which is the peninsula of eastern Virginia. In section 1, Virginia, are included also some of the peninsulas on the eastern shore of the Chesapeake Bay. Massachusetts 3, Cape Cod and its base; and North Carolina 5, the land surrounding Palmico and Albermarle Sounds.

5. *Group 11—Mountain.*—This group contains sections which include chiefly mountainous districts. Included in this group are the following sections: Arkansas 2, which is the southern part of the Ozark Mountains; Massachusetts 1, including the Berkshires of western Massachusetts; Missouri 3, the northern part of the Ozark Mountains; Montana 1, north of the Rocky Mountains; New Hampshire 1, the White Mountains; New York 5, the Catskill Mountains and Adirondack Mountains; Washington 3, the central part of the Cascade Mountains; Wyoming 1, the Rocky Mountains.

6. *Defects and diseases in the series.*—It is now proposed to compare the relative incidence of different defects and diseases in these four physiographical groups.

The most striking feature of these groups is the great predominance of pulmonary tuberculosis (Table 100). In the desert group the rate for pulmonary tuberculosis is 72.8 per 1,000. In addition there were 17.9 per 1,000 with suspected tuberculosis or weak lungs. This gives a total of 9 per cent of the registrants from the desert area with active tuberculosis. This is in striking contrast with the ratio of pulmonary tuberculosis for all men examined throughout the United States, namely, 2 per cent, or 2.6 per cent, if those with weak lungs be included. This high ratio is in turn especially influenced by Arizona 2 with its ratio for pulmonary tuberculosis and weak lungs combined of 10.2 per cent. Also, by New Mexico 2, with its ratio of 6.6 per cent. The reason for these high ratios is not because of the physiographic conditions of the desert induce tuberculosis but because hundreds of young persons with active tuberculosis have gone to desert sections for the sake of their health. Some of these have been examined in connection with the draft. In this group, then, tuberculosis is second in importance only to flat feet, constituting nearly 14 per cent of the defects found, whereas flat foot constituted nearly 20 per cent. The sparsely-settled group does not include section Arizona 2 and consequently its ratio for pulmonary tuberculosis drops to 21.74 per 1,000 men examined which is not far above the average for the whole United States. The mountain group, on the other hand, only gives 18.6 per 1,000 of pulmonary tuberculosis, which is below the average and less than in the maritime section, with 23.4 per 1,000. The difference between the mountain and the maritime groups may be ascribed in part to the fact that the maritime section may afford less favorable conditions for retarding tuberculosis than the mountain districts. On the other hand, it is probable that the mountain districts contain a large number of men who are selected for their



physical robustness, including resistance to pulmonary tuberculosis, and the maritime group has had no such selection.

In respect to venereal diseases (Table 102), we find the highest ratio, as perhaps might have been anticipated, in the maritime group. Here the ratio for syphilis is 8.39, which is nearly  $1\frac{1}{2}$  per 1,000 above the average for the whole United States, and gonococcus infection is 45 per 1,000, or almost double the average for the United States. This high proportion of syphilis and even more of gonococcus infection is due, in part, to the fact that the maritime areas of Maryland, Virginia, and North Carolina are areas with a large number of negroes who have an especially high rate of gonococcus infection. Thus, in section 2, Maryland, the ratio is 27; in North Carolina 5, it is 18; and Virginia 1, it is 80.54. Indeed, this high ratio in Virginia seems largely to control the situation and account for the high ratios for gonococcus infection in the maritime group. This district in Virginia, it may be added, comprises 44 per cent negroes. Outside of those maritime sections which comprise a large proportion of negroes, one does not find any extraordinary amount in this group. Thus, section 2 of Maryland has a ratio of 26.93; and Massachusetts 3 has a ratio of 9.2 (lowest of any section of the State). The high ratio, then, of gonococcus infection in the maritime group is due to the fact that in Virginia the negroes are especially abundant in the maritime districts of the State. For the rest, the ratio of gonococcus infection is high in the desert group (31.4 per 1,000) and relatively low in the sparsely settled group (12.4) and in the mountain group (13.0).

*Curvature of the spine.*—This defect is due to a variety of causes of which tuberculosis is sometimes stated to be one. It is, therefore, somewhat surprising that of the four groups included in the physiographic series, the smallest ratio, 4.0, is found in the desert group. The highest ratio is found in the maritime and mountain groups (5.6). This suggests that a significant portion of the group comprises the results of bad posture, traumatism, and developmental defects due to other causes.

*Benign tumors.*—The ratio for this disease is highest in the desert group, not only in the series, but also in the 22 consolidated groups of similar sections. The question arises whether these benign tumors in a certain proportion of cases are to be ascribed to tuberculosis in the tissues. The lowest ratios for benign tumors in these series is in the sparsely-settled group and in the mountain group in each of which the rate for tuberculosis is relatively low.

Exophthalmic goiter reaches a maximum in the mountain group, with a ratio of 4.7 per 1,000. This is indeed the highest ratio of any of the 22 groups. This indicates that in some way the production of goiter is associated with the mountains. This will be discussed later when we come to consider the topic generally. On the other hand, the lowest ratio for exophthalmic goiter is found in the desert group. Simple goiter is commoner in the sparsely-settled group (13.9) than in any other of the series. It is next commonest in the mountain group (10 per 1,000). It is rarest in the maritime group (0.7). It will be recalled that a large part of the sparsely settled group is really a mountain district, so that the large amount of goiter in the mountain regions is in striking contrast with the small amount near the eastern seashore, and this is only in small amount, to be accounted for by the fact that the negro population

is greater at the seashore and has something less than half the incidence of simple goiter that the white population has.

Obesity is so influenced by internal glandular secretions that one would not be surprised to find it exceptionally common in the mountain regions. On the contrary the ratio is highest in the maritime group (1.9 per 1,000). Like simple goiter it is relatively uncommon in the desert group (1.1 per 1,000).

*Drug addiction.*—The ratio for this defect is highest in the desert group, possibly because of its proximity to the Pacific coast. The ratio in the desert group is 1 per 1,000, whereas in the maritime group it is only 0.2 per 1,000. This ratio for the drug addiction found in the desert group is greatly in excess for the average of the United States, which is 0.5 per 1,000.

*Miner's consumption.* This relatively rare disease was found in five cases in the mountain group. There were 12 cases described in the mining group, some of which are the same as in the mountain group. The total number of cases found in the United States is 34. Outside of the mountains naturally few cases are recorded.

*Monoplegia.*—This defect, as well as other minor paralyses, was found most commonly in the maritime group. Thus, the rate for monoplegia in that group is 1.7 per 1,000, while it is only 1.4 for the desert group and 1.2 for the mountainous and sparsely settled groups each. (See Table 115.)

*Epilepsy* is commoner in the maritime group than in any other of this series (Table 116), the rate being 7.15 per 1,000 in contrast with 5.05, the average for the whole United States. In striking contrast is the percentage of epilepsy in the sparsely settled group (3.45 per 1,000). Epilepsy is a disease whose density increases with inbreeding, such as the maritime group shows.

Other defects which are found in excess in the desert group are: Certain eye diseases, namely, cataract (1.1 per 1,000), conjunctivitis and pterygium (each 2 per 1,000) and blindness in one eye (8 per 1,000). The significance of these high ratios in the desert is not clear. They are in striking contrast with the maritime rate of 0.9 per 1,000 for cataract, and 0.25 and 0.20, respectively, for conjunctivitis (other) and pterygium. The hypothesis may be suggested that the bright sunlight or dust may have something to do with this high rate, since these factors induce inflammation of the conjunctiva and cornea.

*Defective hearing* is also common in the desert with a ratio of 8.5 per 1,000 (Table 123). This is in striking contrast with the maritime ratio of 5.1 per 1,000. Of course, this high ratio, like that of tuberculosis, may be due to the fact that persons with otitis media and other diseases affecting hearing have gone to the dry desert for cure. The relatively low rate in the maritime region is in part due to the low rate for negroes in general.

*Hypertrophic tonsillitis* finds its greatest incidence in this series in the desert (Table 140). It shows a ratio of 31.2 per 1,000 there, or over 3 per cent. The average for the whole United States is 23 per 1,000. The minimum rate in this series is found in the maritime group (24.0 per 1,000). The mountain group is intermediate, with a ratio of 22.2 per 1,000.

*Valvular diseases of the heart* (table 142).—The ratios for this disease in the desert are relatively low. On the other hand, some of



them reach a maximum in the maritime group. Thus, in the maritime group, the ratio for aortic insufficiency is 1.6 per 1,000, and in the desert group 1.1 per 1,000, and in the United States as a whole 1.3 per 1,000.

Of valvular lesions, unclassified, there are 24 per 1,000 recorded in the maritime group as contrasted with 18 per 1,000 in the desert group, and 19 per 1,000 in the mountain group, the average for the whole United States being 16 per 1,000. Here, again, we find a great excess of valvular diseases in the maritime group. This is probably due in part to the Negroes in this group, since Maryland 2 has 32 per cent Negroes and a rate of 46.4 for this defect. Similarly, we find a larger ratio of cardiac hypertrophy and of myocarditis in the maritime group.

Among the desert defects occurring in excess are: Hemorrhoids and varicocele. The rate for varicose veins is highest in the mountains (4.85 per 1,000). Functional cardiac disorders find their maximum in the maritime group, namely 1.8 per 1,000. They are relatively low in the desert group with a ratio of 0.17 per 1,000.

*The respiratory diseases* in these four districts may be compared. Bronchitis is commonest in the maritime region (0.84 per 1,000). Asthma (table 154) is commonest in the maritime section with a ratio of 3.7 per 1,000 and rarest in the mountain group (2.6 per 1,000). This is in contrast with the average for the whole United States (2.45 per 1,000).

*Defective and deficient teeth* (table 155) were found in highest proportion in the maritime region (22.15 per 1,000) and least common in the desert group (8.3 per 1,000). The average for the whole United States is 13.5 per 1,000. It appears, therefore, that the recruits in the maritime group have teeth worse than the average, and those of the desert markedly better than the average. This difference is doubtless to be ascribed to the difference in the constitution of the population of these two regions. First, it must be said that the desert region comprises a great many Indians, and these have a very low ratio of defective and deficient teeth, and the same is true of the "Mexican" population, also largely Indian, as it is found in our territory. Also the migration of people to the desert on account of their health are mostly of a fairly well-to-do class who have probably cared for their teeth. On the other hand, registrants from Maine 2 had a defective teeth rate of 38.8 per 1,000, one of the highest of any section of the country. Massachusetts 3 had a large ratio of 53.26 per 1,000. These high ratios, as already pointed out, may be in part due to the careful examination and recording of these defects, especially at Camp Devens, but it also corresponds without doubt to a racial nonresistance to tooth caries, which is characteristic of some of the older stock of New England.

*Pyorrhea alveolaris*.—This disease occurred in the ratio of 1.5 per 1,000 in the desert and in the maritime region at the rate of 0.2 per 1,000, and the rate was approximately the same in the mountain group. The incidence of pyorrhea in the desert is exceedingly high since the rate for the whole United States is 0.34. This high rate is due to conditions in New Mexico, section 2, where the rate is 2.17 per 1,000 and even higher in other parts of New Mexico. It is uncertain what the meaning of this high rate is.



*Hernia* had a defect rate of 24.4 per 1,000 in the desert section (table 164), which is exceptionally large, the average for the whole United States being 20.8. This is entirely due to the rate of 28.0 found in Nevada, a mining State like Montana; Idaho and Michigan also have high rates (27 and 29). It may be added that the defect rate for enlarged inguinal rings is also exceptionally high (30.9 per 1,000), largely due to Nevada (31.3 per 1,000), and even higher in the sparsely settled group, 33.9 per 1,000. Hydrocele is also exceptionally common in the desert with a ratio of 2 per 1,000 men examined, whereas in the maritime group the ratio is 1.2 and in the mountain group 1.0.

The population of the desert section is also characterized by a large amount of hammer toe and a high percentage of "general unfitness for military service." The latter rate is probably due to the large number of persons with physical defect due to tuberculosis.

In the sparsely settled group there were found outstanding traits of a large amount of simple goiter and the high percentage of mitral insufficiency (15 per 1,000). In the mountain section the outstanding peculiarities are the large amount of goiter already referred to, a considerable amount of defective teeth, and a large group of valvular lesions (unclassified). On the other hand, there was relatively little bronchitis. Finally, in the maritime group the outstanding facts are the large amount of arthritis and muscular rheumatism; these two traits are sometimes associated with dampness, but more properly with traumatism, focal infection, or venereal disease. Also in the maritime group are a large amount of minor paralyses, epilepsy, and valvular diseases of the heart, together with asthma and defective and deficient teeth. These defects are, as already pointed out, connected with the constitution of the population.

### SERIES III. RACIAL SERIES.

1. *The composition of the series.*—This includes the following groups: Group 12, mountain whites of the southern Alleghanies; group 13, Indian (also sparsely settled); group 14, Mexican (for the most part Indian and sparsely settled); group 15, native whites of Scotch origin; group 16, Russians, 10 per cent and over; group 17, Scandinavians, 10 per cent and over; group 18, Finns, 10 per cent and over; group 19, French Canadians, 10 per cent and over; group 20, Germans, 10 per cent and over; also Scandinavians, over 10 per cent; group 21, Germans and Austrians, together over 20 per cent; group 22, Germans and Austrians, together over 15 per cent and under 20 per cent.

2. *Group 12—Mountain whites.*—The mountain whites includes the following sections: Kentucky 1, being the easternmost section of the State; North Carolina 1, the west side of the State; South Carolina 1, the western section of the State; Tennessee 3, the western section of the State; Virginia 4, the mountain region of West Virginia; West Virginia 1, the more mountainous section of that State.

Concerning the origin of the mountain whites, little need be said here. They evidently migrated from the lower country eastward and settled in the mountains before the Revolutionary War and subsequently. Travelers in this section remark upon their peculiarities,

which are largely ascribed to isolation, and there has no doubt also been a large amount of inbreeding and hookworm.

3. *Group 13—Indian, sparsely settled.*—This group includes the following sections: Arizona 1, being the northern part of the State, having a population in 1910 of 37 per cent Indians; New Mexico 1, being the northwestern corner of the State, in which the Indian population in 1910 exceeded 29 per cent; Oklahoma 1, which in 1910 comprised 9 per cent Indians; probably at the time of the draft the proportion was less, owing to immigration of whites in recent years; South Dakota 3, including the largest Indian reservations of the State, with an Indian population of 87 per cent.

4. *Group 14—Mexican, sparsely settled.*—This group includes the following four sections: Arizona 1 and Arizona 2; these have a Mexican population of about 8 per cent; New Mexico, 3; this southern section of New Mexico has a Mexican population of over 14 per cent; Texas 1, lying along the border, has a Mexican population of about 17 per cent.

5. *Group 15—Native whites of Scotch origin.*—This group includes Kentucky 2, the agricultural section of the State and largely occupied by Scotch immigrants from Virginia; North Carolina 3, upper Cape Fear River district, largely descendants of the Scotch Presbyterians who migrated to that river.

6. *Group 16—Russian 10 per cent plus.*—This group includes five sections, in which the Russian population (not Jews, but mostly Russian Menonites) constitute more than 10 per cent of the population. They are partly farmers, sometimes miners. These sections are as follows: Colorado 2, occupying the northeastern corner of the State and comprising 8 per cent Russians; Kansas 1, in the western part of the State, including 13 per cent Russians; North Dakota 3, in the central part of the State, including 27 per cent Russians; Pennsylvania 3, the anthracite coal-mining district, including 11 per cent Russians and 10 per cent Austrians, largely Slavs; South Dakota 2, including about 26 per cent Russians and 3 per cent Austrians, largely Slavs.

7. *Group 17—Scandinavian, 10 per cent plus.*—This group includes 13 sections in which the Scandinavians constitute a prominent part of the population, 10 per cent and over. In the case of Minnesota 1, the percentage rises to 37 per cent; of North Dakota 2, to 31 per cent.

8. *Group 18—Finn, 10 per cent plus.*—This group includes two sections with 10 per cent Finns or over. This includes Michigan 1, with 13 per cent Finns; and Minnesota 3, with 10 per cent Finns.

9. *Group 19—French Canadians, 10 per cent plus.*—This group includes 10 per cent or over of French Canadians. There are 5 sections in this group: Maine 3, with 12½ per cent French Canadians; Massachusetts 2, with 10 per cent French Canadians; New Hampshire 1, with 17 per cent; New Hampshire 2, with 13 per cent; and Rhode Island 1, with 11 per cent French Canadians.

10. *Group 20—German and Scandinavian, 10 per cent plus.*—This group includes a section containing Germans 10 per cent and over and Scandinavians 10 per cent and over. This includes Minnesota 1, with 10 per cent and 37 per cent, and Minnesota 2, with 23 per cent and 17 per cent of the two peoples, respectively; South Dakota 1, with 10 per cent and 16 per cent; Wisconsin 1, with 14 and 22 per cent; and Wisconsin 2, with 26 per cent and 20 per cent, respectively.



11. *Group 21—German and Austrian, 20 per cent plus.*—This group includes Germans and Austrians taken together at over 20 per cent. This includes Illinois 1, the suburbs of Chicago, with 21 per cent Germans and 4 per cent Austrians; Illinois 4, with 17 per cent Germans and 3 per cent Austrians; Indiana 1, with 17 per cent Germans and 4 per cent Austrians; Minnesota 2, with 22 per cent Germans and 3 per cent Austrians; and Ohio 1, with 19 per cent Germans and 9 per cent Austrians.

12. *German and Austrian, 15 per cent plus.*—This group includes Germans and Austrians together over 15 per cent. This includes naturally the whole of group 21, and in addition 10 other sections.

13. Defects or diseases of racial series:

(a) *Group 12, mountain whites.*—This group is characterized by an average amount of tuberculosis; by slightly less than the average amount of venereal diseases; by about 1 per 1,000 more than the average amount of curvature of the spine; by about five-tenths of 1 per 1,000 more than the average amount of arthritis. Exophthalmic goiter is slightly in excess of the average, but simple goiter is in deficiency. Muscular rheumatism has the relatively high rate of 0.8 per 1,000. The rate for alcoholism is exceptionally low (0.07 as contrasted with 0.31 for the whole United States). Likewise drug addiction is about two-thirds the average. The minor paralyses occur at about half the average rate. Epilepsy is about 1 per 1,000 above the average, neurasthenia 0.20 per 1,000 above the average. Chorea, defective speech, deaf-mutism, are relatively common. Similarly there is a slight excess of deformity of the spine and of other diseases of the nervous system, not specified. On the whole, the nervous system of the mountain whites seems defective beyond the average. Of mental deficiency the mountain whites showed the highest ratio of any white group (27.2 per 1,000), which is nearly double the average rate for the United States. Of mental alienation the mountain whites showed nearly double the average rate of mental deficiency for the United States; that is, 27 per 1,000 as contrasted with the general average of 14. Dementia precox, however, was relatively uncommon, and the same is true of other forms of psychoses. In a word, the mountain whites show an excessive amount of feeble-mindedness and less than the average tendency to the different forms of insanity. As for the eye, astigmatism, myopia, unclassified defective vision, and cataract are relatively rare. On the other hand, there is an excess of strabismus, trachoma, other forms of conjunctivitis, retinitis, nystagmus, and blindness of one or both eyes. In a word, while errors of refraction are relatively uncommon in the mountain whites, there is an excess of developmental and accidental defects and infections.

Among diseases of the ear, there is relatively little otitis media, perforated ear drum, and defective hearing. The amount of inflammation of the sinuses connected with the nose was exceptionally high, probably due to the experience of an examiner at a particular camp. Hypertrophic tonsillitis was commoner than the average, and the same is true of other diseases of the tonsils.

As for the circulatory system, fewer defects than the average were found in the following: Endocarditis, aortic insufficiency, aortic stenosis, mitral insufficiency, mitral stenosis, and, indeed, all of the valvular diseases of the heart. Also cardiac dilatation, myocarditis,



myocardial insufficiency and arteriosclerosis, and hypertension. Relatively few cardiac murmurs, not organic, were found.

On the other hand, there was an excess of hemorrhoids, varicocele, and varicose veins (defects common to tall men), also phlebitis, cardiac arrhythmias, and functional cardiac disorders. On the whole, the mountain whites are characterized by absence of organic diseases of the circulatory system with a slight excess of functional disorders and of breaking down of the walls of the veins. The mountain whites showed a slightly less amount of asthma than the average for the United States.

Among diseases of the digestive system, there is less than the average of defective and deficient teeth. There is rather more than the average of pyorrhoea and about the average of hernia and enlarged inguinal rings.

The mountain whites show an excess of scars, painful and deforming, also of various accidents to the bones and organs of locomotion, such as badly united fractures, shortening of lower extremities, loss of extremities in whole or part, bony and fibrous ankylosis of the extremities, contractures of joints, relaxed ligaments of joints, chronic dislocation, contractures of muscle fascia, tendon and sheath, hallux valgus, pes cavus, pronated foot, loss of part of foot, deformity of foot, depressed fracture of skull, deformity of hand resulting from injury, loss of one or more fingers, exostoses, metatarsalgia, talipes, deformities in general (especially of appendages), deformities of the head, trunk, and chest, and other unclassified defects of bones and organs of locomotion.

On the other hand, there is a relative absence of flat foot and hammer toe. It is clear, then, that the mountain whites have suffered to an extraordinary degree in respect to mutilizations and deformations of the feet and especially of the appendages, but there are relatively few defects due to the wearing of the fashionable shoes.

The mountain whites show an excess of defective physical development, deficient chest measurement and underweight, but relatively few cases of underheight. There is an excess of cases of malnutrition, of hypospadia, flat foot, and other recent wounds as well as "general unfitness for military service." On the other hand, there is less than the average of cryptorchidism.

The general picture of the mountain whites then, is that of a group with a good physical constitution, especially of the heart, eyes, and ears, and nervous system, but defective in intelligence and suffering from malnutrition, infectious diseases, and badly damaged by trauma-producing accidents.

(b). *Group 3, Indian, living in sparsely settled localities.*—This group is characterized by an excess of pellagra and pulmonary tuberculosis. Venereal diseases on the whole are found in about double the average ratio. There is an excess of benign tumors and arthritis and drug addiction, but relatively little goiter, either simple or exophthalmic, curvature of the spine, obesity, and alcoholism.

Of diseases of the nervous system, there is an excess of the minor paralyses and of deafness, but less than the average of epilepsy, neurasthenia, chorea, defective speech, and mutism. Of mental defects there is only the average amount of mental deficiency and less than the average of constitutional psychopathic states and the various psychoses. Of defects of the eye, there is less than the average

of errors of refraction and more than the average of strabismus, leucoma, trachoma, other forms of conjunctivitis, pterygium, amaurosis, choroiditis, glaucoma, and blindness in one or both eyes. In general, the errors of refraction in the Indian group are below the average, but diseases of the eye due to infections, lack of care, dust, and traumatic or infectious blindness are unusually common.

The Indian group shows a trifle less than the average otitis media, and defective hearing, but rather more than the average of perforated ear drum. The Indian group shows rather less than the average of disease of nasal fossae and decidedly more than the average of hypertrophic tonsillitis.

Diseases of the circulatory system, specially of the organic type, are all relatively rare in the Indian group. On the other hand, cardiac arrhythmias are unusually common. Hemorrhoids and varicocele show a slight excess, but there is less of varicose veins than the average. Of respiratory diseases, aside from tuberculosis, the Indian group shows relatively little. There are relatively few cases of defective and deficient teeth and of enlarged inguinal rings.

On the other hand, there is more than the average of pyorrhea, of appendicitis, and fistula in ano. Hydrocele and diseases of the bladder are somewhat commoner than the average, but there is less of most other nonvenereal diseases of the genitourinary system. Disfiguring and painful scars are in excess, and also faulty unions of fractures of extremities. Loss of extremities and bony ankylosis are in excess, also chronic dislocation of the hand, pes cavus and unclassified deformities of the feet and of the hand. On the other hand, hallux valgus, pes planus and pronated feet are much less frequent than the average. On the whole the Indian group is characterized by severe defects, due to injury of the extremities, but the feet show little of the defects due to fashionable foot gear. There was less than the average amount of defective physical development (although an excess of deficient chest measurement), and relatively few in the Indian group were underweight or under-height, though there was an excess of malnutrition. Cryptorchidism was relatively rare, but hair lip and cleft palate were commoner than the average and fewer than the average were placed in the category of generally unfit for military service. The Indian group then showed a prevalence of well-developed men except for the congenital defect of cleft palate and hair lip.

On the whole the Indian group is characterized by men of exceptionally good physique, and good circulatory and nervous systems. The intelligence is above that of the mountain whites. The principal defects in excess of the average are traumatic.

(c) *Group 14, Mexican group (sparsely settled).*—The total population of this group is rather small, consequently the comparison can be made with the average in the case of commoner defects only. There is strikingly more than the average of pulmonary tuberculosis ( $2\frac{1}{2}$  times), and venereal diseases, especially gonococcus infection, are above the average. Curvature of the spine, arthritis, and the goiters are less common than the average. There is little obesity. There is an excess of drug addiction.

Of the diseases of the nervous system there is less than the average of the minor paralyses, epilepsy, neurasthenia, migraine, deaf-mutism, and unspecified diseases of the spinal cord and nervous system.



There is, however, a slight excess of cases of disordered action of the heart. Of mental diseases there is less than the average of psychoses, constitutional psychopathic state and mental deficiency. Refractive errors of the eyes are rare. On the other hand strabismus, cataract, trachoma, other forms of conjunctivitis, pterygium, amblyopia, amaurosis, glaucoma, and blindness in one or both eyes are exceptionally common.

Thus, the Mexican group is characterized by an exceptional freedom from eye defects, with, however, an exceptionally large amount of eye infection and its consequences, as well as of traumatisms to the eye.

Otitis media and perforated ear drum are relatively uncommon and there is much less than the average of defective hearing. Hypertrophic tonsillitis is relatively infrequent. The valvular diseases of the heart are relatively uncommon. There is little arteriosclerosis and functional disorders of the heart; and though hemorrhoids are more frequent than the average, varicocele and varicose veins are less so. On the whole the Mexican group is characterized by a large proportion of normal, normally functioning hearts. Respiratory diseases, nontuberculous, are relatively uncommon. The teeth are far less defective than the average, though pyorrhea is unusually abundant. There is the average amount of hernia and rather less than the average of the more important nonvenereal diseases of the genito-urinary system. Deformities due to scars are slightly commoner than the average. Badly united fractures are relatively common. There is, however, an extraordinary lack of loss of extremities, of ankylosis, of contracture of muscle fascia, tendon, etc., and of bad feet of all types, including mutilation or deformity of feet, hands, and fingers. The Mexican group thus differs markedly from the Indian group or that of the mountain whites in having suffered far less from traumatisms of the appendages. This may possibly be due to the fact that, whereas the mountain whites and many of the Indians are mountain dwellers, the Mexican group lives on the plains.

Of the congenital malformations, there is less than the average of defective physical development, deficient chest measurement, underweight, and underheight. There is a small excess of bullet or other recent wounds, and cryptorchidism and cleft palate occur in about the average ratios.

On the whole, then, the Mexican group shows a resemblance to the Indian group except in the marked lack of defects of traumatisms, especially of the appendages.

(d) *Group 15, Native whites of Scotch origin.*—The Scotch are the tallest of all races of the globe and the men included in this group are part of the tallest populations of the United States. Both sections are south of the Ohio and Potomac Rivers and consequently showed an excess of some of the diseases that affect the Southern States.

There is about double the average amount of pellagra in this group. Rather more than the average of tuberculosis and about the average of venereal diseases. There is rather less than the average of curvature of the spine, diabetes mellitus, arthritis, and the two forms of goiter. Alcoholism is commoner than the average, but there is less than the average of drug addiction. Tabes dorsalis is



relatively common but there is less of most of the minor paralyses. Neurasthenia, neuro-circulatory asthenia, and hysteria are relatively uncommon but there is more than the average of defective speech, deaf-mutism and complete deafness. There is slightly more than the average of mental deficiency but less than the average of dementia precox and psychoses. Of diseases of the eye there is less than the average of errors of refraction and of amblyopia, but there is more than the average of strabismus, trachoma, other forms of conjunctivitis, pterygium, and loss of sight in one or both eyes. There is less than the average of otitis media and perforated ear drum, but more than the average of defective hearing. Hypertrophic tonsillitis is slightly commoner than usual. Valvular diseases of the heart are relatively rare and the same is true of functional diseases.

Despite the large size of the recruits, hemorrhoids, varicocele, and varicose veins are relatively uncommon. Thus, the men of this group show exceptionally normal cardio vascular conditions. Respiratory diseases, outside of tuberculosis, are relatively rare. The teeth are far better than the average. Enlarged inguinal rings are extremely uncommon and there is somewhat less hernia than in most groups. Diseases of the genito-urinary system, nonvenereal, are relatively uncommon and there are fewer than the average of scars. Fractures of appendages are below the average in frequency, but there is slightly more than the average of loss of upper or lower extremities in whole or part. Ankylosis, on the other hand, is not very common. Feet conditions are exceptionally good, as is commonly the case in the population of the Southern States. There is, however, slight excess of deformity of the appendages, trunk and chest. There was recorded more than the average of defective physical development, deficient chest measurement, and underweight, but less than the average of underheight. The population of this group, then, comprises an exceptionally large number of gaunt men. Cryptorchidism was less common than the average, but there was more cleft palate and hair lip. In addition to the excessive number of cases of underweight, there was an excess of persons recorded as "generally unfit for military service."

The population of this group, then, shows itself to be exceptionally well developed, for the most part with good cardio-vascular and nervous systems and relatively devoid of foot defects and hernia. Aside from the excessive amount of tuberculosis, it is a group exceptionally well fitted for military service.

(e) *Group 16, Russians 10 per cent or over.*—The Russian groups, consisting chiefly of Russian Menonites, comprise numerous other races. They are grouped together instead of separately, with the idea that the unusually large number of Russians in the population will differentiate this group from the average.

This group has less than the average amount of pulmonary tuberculosis and less than half the average of venereal disease. Curvature of the spine occurs in less than the average proportion of cases. Benign tumors and arthritis are relatively uncommon. On the other hand, the two forms of goiter are somewhat more frequent than the average, which may be in part in consequence of the fact that two of the five sections in this group live in the Dakotas and one in Colorado, States with a high ratio of goiter. There is less obesity than the average. Alcoholism and drug addiction are relatively rare. The

minor paralyses are not common. The ratio for epilepsy is 10 per cent below the average. There is a slight excess of deaf-mutism and complete deafness, but for most of the nervous disorders the ratio is at or below the average. Mental deficiency is slightly below the average but the psychoses are unusually infrequent. There is rather more than the average of errors of refraction, of trachoma, and other forms of conjunctivitis, of amblyopia, pterygium, choroiditis, and retinitis. On the whole, this group is characterized by eyes that are slightly more defective than those of most of the population. Otitis media has a ratio  $2\frac{1}{2}$  times above the average, but defective hearing is 0.3 less. Rather a large ratio of sinusitis was brought to light as well as of rhinitis, about 50 per cent more than the average was found of hypertrophic tonsillitis and other diseases of the tonsils.

Of diseases of the circulatory system, there is far less than the average of valvular diseases of the heart and myocarditis, but something more than the average of cardiac hypertrophy. Varicose veins are abnormally common, but there is less than the average of hemorrhoids and varicocele. Functional cardiac disorders, tachycardia and cardiac arrhythmias are in excess. Thus, this group is characterized by a tendency to organic diseases of the heart and an excess of functional disorders. Bronchitis, pleurisy, and asthma are all in excess. Teeth are better than the average, but there is an excess of enlarged inguinal rings. Malunion of fractures are abnormally common and there is an excessive amount of loss of whole or part of upper extremities and of ankylosis of joints, doubtless due to occupation. Hallux valgus, flat foot, hammer toe, and other forms of defective feet are in excess. There is three times the average amount of metatarsalgia and much deformity of the upper and lower extremities. There is an excessive tendency of the muscles of the lower extremity to atrophy. On the whole, this group is characterized by bad feet and appendages. Of defective physical development, deficient chest measurement, underweight and underheight, there is less than the average. There is more, however, of such congenital defects as cryptorchidism, cleft palate, and harelip. This group, then is characterized by the exceptional frequency of certain developmental defects, although not especially characterized by lack of general physical development or small stature.

On account of its bad feet and functional heart disorders this group is somewhat below the average in meeting the physical requirements for military service.

(f) *Group 17, Scandinavian, 10 per cent plus.*—The 13 sections included in this group are characterized by an excessive proportion of Scandinavians as compared with other groups.

This group is characterized by about two-thirds the average amount of tuberculosis and one-third the average amount of venereal disease. In fact, the group shows itself to be strikingly free from such diseases. Exophthalmic goiter is 60 per cent greater than the average and simple goiter is nearly three times as prevalent. The Scandinavians live prevalingly in the goiter district, but whether the high goiter rate in this district is due to the Scandinavians or whether the Scandinavians have the high goiter rate because of it in this district will be discussed elsewhere. Curvature of the spine is also exceptionally common. Alcoholism and drug addition are much less frequent than in the population at large.



Of diseases of the nervous system there is slightly more than the average amount of monoplegia and paraplegia. On the other hand epilepsy is less common than the average, and the same is true for neurasthenia. Chorea, neuritis, and defective speech are slightly above the average; deaf-mutism slightly below. Thus, the Scandinavian group shows itself very close to the average in respect to nervous diseases. As for mental defects, there is a very slight excess of mental deficiency above the average (15.6 per 1,000), as contrasted with 14.5 per 1,000 for the entire country. There is slightly more than the average of manic-depressive psychosis and unclassified psychoses.

As for diseases of the eyes, they are relatively uncommon, whether in the group of errors of refraction or in that of infectious diseases. There is about 1 per 1,000 fewer recruits from this group with otitis media than in the population at large, but about 1 per 1,000 more than that of defective hearing. Hypertrophic tonsillitis is only about two-thirds as common as in the population at large. Valvular diseases of the heart are slightly in excess of the average, but the functional cardiac disorders are less frequent. Varicose veins and varicocele have a high ratio, but hemorrhoids are less frequent than the average. Respiratory diseases, other than tuberculosis, are slightly less common than the average. The teeth are a little more than normally defective; hernia occurs in about the average ratio. Hydrocele has a slightly higher ratio than the average. Ankylosis is somewhat commoner than usual and the same is true of hammer toe, pes planus, deformities of the hand and fingers due to injury or infection, and metatarsalgia.

While there is an excessive amount of deformity of the upper and lower extremities, trunk, head, and chest, cryptorchidism, and cleft palate and hair lip, there is much less than the average of underweight and underheight.

On the whole, the Scandinavian group is characterized by absence of the more important infectious diseases, but by a slight excess of nervous defects. The eyes, ears, and throat are exceptionally good. The cardio-vascular system has more defects than the average and the respiratory system less. On the mechanical side, the population shows an excess of defects, especially in the large proportion of flat feet. From the military standpoint the group ranks at or slightly above the average.

(g) *Group 18, Finns, 10 per cent or over.*—This is a small group comprising only two sections, in neither of which is the proportion of Finns anything like a majority. However, it will be interesting to see how these two groups, both of which are extremely far in the north, compare with the average.

Pulmonary tuberculosis occurs in only about two-thirds the average proportion of cases and venereal diseases in about half. There is only about two-thirds the average amount of curvature of the spine, but associated with the northern position of this group there is double the average amount of exophthalmic goiter and four or five times that of simple goiter. There is hardly half the average amount of drug addiction but a little more than the average amount of alcoholism. Multiple sclerosis, monoplegia, and disordered heart action and chorea have high ratios, while those of epilepsy and un-



classified diseases of the spinal cord are low. There is about an average amount of deaf mutism and defective speech.

From the standpoint of the nervous system, the group is of average quality. Of mental deficiency there is less than two-thirds of the average in this group but more than the average of constitutional psychopathic state, dementia precox, and alcoholic psychoses. It appears then that the psychoses are more frequent than the average.

As for the eyes, astigmatism is rather frequent, but hyperopia and myopia and defective vision unclassified are strikingly less than the normal. There is relatively little cataract, trachoma, conjunctivitis, pterygium, amblyopia, choroiditis, and nystagmus. On the other hand, there is a slight excess of blindness in one eye and enucleation of the eye. The eyes are superior to the average in their developmental qualities. Otitis media is slightly less common than the average, but there is slightly more than normal amount of defective hearing. Hypertrophic tonsillitis occurs in only about two-thirds the average frequency. Valvular diseases of the heart are relatively common. Arterio sclerosis is rare. Varicose veins are more frequent than usual but hemorrhoids and varicocele less so. Cardiac arrhythmias, cardiac murmurs, not organic, and tachycardia are unusually common. On the whole, this group is characterized by hearts that are bad from the standpoint of military service.

There is relatively little asthma or bronchitis but more than the ordinary amount of pleurisy. The teeth are far more defective than normal. Hernia and enlarged inguinal rings are slightly less so. Hydrocele is slightly less common than the average. There is more than the average amount of faulty union of fractures, ankylosis of joint, hammertoe, and deformities of hand and fingers due to injury. There is rather less than the average of shortening of lower extremity, chronic dislocations and contractures, hallux valgus, pes cavus, pes planus, talipes, and deformities of the upper extremities and of the chest. On the whole, this group is characterized by appendicular conditions somewhat above the average.

There is less than the usual amount of defective physical development, of deficient chest measurement, and of underweight. Cryptorchidism is, however, exceptionally common, and there is more than the average amount of cleft palate. Thus, this group is characterized by a good general physique with, however, a tendency toward certain minor developmental defects. On the whole the group containing the Finns is up to or slightly above the average of the population in its fitness for military service.

(h) *Group 19, French Canadian, 10 per cent plus.*—This group contains five sections, all of which are in New England, in consequence of which they show in their statistics the effects of the thorough examinations made by the local board and camp physicians who examined the men of this part of the country.

Tuberculosis occurs in the French Canadian group at a rate a trifle in excess of the occurrence of tuberculosis in general. Venereal diseases occur at about half the average rate. Curvature of the spine, gonorrhea, malignant tumors, aneurysm, obesity, and alcoholism are abnormally common. On the other hand there is less exophthalmic and simple goiter than in the population from any other parts of the country.

Of diseases of the nervous system there is an excess of the minor paralyses, neurasthenia, neurosis, defective speech, deaf mutism, complete deafness, and unclassified diseases of the spinal cord and nervous system. On the other hand, epilepsy and defective speech are less common than in the population at large. The group, therefore, is characterized by an exceptionally large amount of nervous disease and defect. On the mental side there is a slight excess of mental deficiency, dementia precox, manic depressive psychoses, and other psychoses. There is a slight deficiency in constitutional psychopathic state. On the whole, the group is markedly below the standard in respect to mental traits.

Refractive errors are uncommonly frequent, almost double the average, but there is relatively little trachoma or other forms of conjunctivitis and of blindness in one eye. The eyes are thus characterized by an excess of developmental defects and less than the average of those due to infection and traumatism.

Otitis media is exceptionally high, as are also perforated eardrum and defective hearing. The ears are thus far poorer than the average. Hypertrophic tonsillitis is below the average frequency.

Of diseases of the circulatory system, valvular diseases of the heart are slightly commoner in the French-Canadian group than in the population at large, and the same is true of cardiac murmurs not organic, or varicocle, varicose veins, and hemorrhoids. Diseases of the respiratory system, other than tuberculosis, are commoner than the average. The teeth are three times as defective. Hernia and enlarged inguinal rings are slightly more frequent than in the population at large. Hydrocele is relatively common. Shortening of the lower extremity is abnormally frequent, and also ankylosis, bony and fibrous, of joint, contractures, hammertoe, hallux valgus, pes cavus, pronated feet and deformity of feet, hand, and fingers, and upper and lower extremities in general, trunk, head, and chest. Atrophy of muscles of the upper and lower extremity is extremely common.

On the whole, then, the French-Canadian group is characterized by defective appendages, although the amount of flat feet is somewhat less than that found in the population at large. The ratios of defective physical development, deficient chest measurement, underheight, underweight, malnutrition, monorchism, cryptorchidism, cleft palate, are all exceptionally high. More than double the average proportion of underweight appears in the French-Canadian population, namely, 66 per 1,000 as contrasted with the average of 26.5 per 1,000.

On the whole, the French-Canadian group by virtue of a high per cent of tuberculosis, pleurisy, nervous and mental defects, defective eyesight, otitis media, defective hearing, valvular functional heart disorders, bad teeth, defective appendages, and small size constitutes perhaps the poorest of the groups from a military standpoint of view. The situation is hardly saved by the circumstance that the venereal rate is somewhat below the normal and that hypertrophic tonsillitis is relatively uncommon.

(i) *Group 20, German and Scandinavian, 10 per cent plus.*—This group, like the Scandinavian, is characterized by a relatively small amount of tuberculosis and venereal disease. There is an excess of curvature of the spine, of the two forms of goiter, and less than the average of obesity and alcoholism and drug addiction.



Of diseases of the nervous system, the minor paralyses are in excess. Epilepsy, hysteria, are less common than in the average population, while chorea, defective speech, are slightly more common. Of mental defects, mental deficiency shows a ratio of 4.5 above the average and manic depressive psychosis is over twice the average. Constitutional psychopathic states, dementia praecox, and the psychoses are slightly below the average. Of eye diseases, errors of refraction are relatively uncommon, and the same is true of such diseases as trachoma, conjunctivitis, amblyopia, and blindness of the eyes, in one or both. The quality of the eyes of this group is therefore exceptionally good. Otitis media has a ratio of 2 per 1,000 less than the average, and perforated eardrum about two-thirds of the average. Defective hearing has, however, a normal ratio. Hypertrophic tonsillitis shows less than two-thirds the normal ratio.

Of diseases of the circulatory system there is in group 20 an excess of endocarditis, but a deficiency in practically all of the valvular diseases of the heart. Functional cardiac disorders and cardiac murmurs, not organic, are deficient, but arrhythmias and tachycardia are in excess. Hemorrhoids show a deficiency and varicose veins are in excess. On the whole, the heart conditions in the German and Scandinavian group are not far from average. Hernia is a trifle more frequent than in the population at large. Malunion of fractures is less common than normal, but ankylosis, bony and fibrous, are somewhat in excess.

As for appendicular conditions there is an excess of flat foot, deformities of the hand and fingers through injury or infection, and deformities of the extremities. On the other hand, there is a deficiency of hallux valgus, pronated feet, and pes cavus. There is a slightly excessive amount of deformity of head, trunk, and chest, of atrophy of muscle of upper and lower extremity. There is much less underweight and underheight than in the population at large, but cryptorchidism and cleft palate are commoner.

Group 20 thus resembles somewhat the Scandinavian group. It comprises a population that is at least up to average in fitness for military duty.

(k) *Group 21, German and Austrian, 20 per cent plus.*—This group comprises five sections from the interior of the country. It is characterized by relatively small amount of tuberculosis and venereal disease. Cancer and other malignant tumors are relatively rare; arthritis is less common than in the general population, and the same is true of obesity. Goiter, both exophthalmic and simple, are in excess, as are also alcoholism and drug addiction.

Of diseases of the nervous system, epilepsy, hysteria, and defective speech are less common than the average, but there is slightly more deaf-mutism. Mental deficiency has a ratio of 2 per 1,000 below the average, and constitutional psychopathic state and psychoneuroses, alcoholic psychoses, and other psychoses probably occurred at about the normal rate. Of eye defects, refractive errors are of less than the average frequency, but nystagmus shows something of an increase from the average rate. Blindness is below the normal. Of ear diseases, otitis media is slightly less than normal and perforated ear drum is much less than average. Valvular diseases of the heart are for the most part relatively infrequent. Myocarditis is slightly in



excess. Organic malfunctioning of the heart, including tachycardia and arrhythmias, is less common than normal, but varicocele and varicose veins are in excess. The teeth are better than the average. There is less hernia even than in the German-Scandinavian group. Malunion of fracture is much less than the average and so is shortening of the lower extremity. Bony ankylosis of joint and loss of upper or lower extremity is in excess. This group is characterized by an extraordinary amount of relaxed ligaments of the joints and 15 per cent more than normal flat feet. There is an excess of deformities of hand and fingers due to injury or infection. On the other hand, hallux valgus is relatively uncommon. Pes cavus and pronated feet are only about half as common as the average. There are relatively few recruits found with defective physical development, chest measurement, under weight, or under height. Cryptorchidism, harelip, and spina bifida are less frequent than usual.

Thus, on the whole, the German-Austrian group is characterized by physical fitness, the heaviest handicap being that of flat feet.

1. *Group 22, German and Austrian, over 15 per cent.*—This group gives us a large number of recruits from which to count defects. It appears that in this group, tuberculosis has risen to considerably above the average and that of venereal disease is slightly above. Exophthalmic and simple goiter are relatively much more numerous than in the general population, as was the case in group 21. The amount of alcoholism and drug addiction approaches more nearly that of the general population. Epilepsy again is less common than in the country at large, while mental deficiency, though still below, approaches more nearly the normal rate. Eye defects are still below normal, although approach the average condition, and blindness is relatively even rarer than in group 21. There is, moreover, much less defective hearing than in group 21. Hypertrophic tonsillitis has shifted a good deal until it stands at or slightly above the normal. Valvular diseases of the heart still remain for the most part exceptionally low. The functional cardiac disorders are nearly normal, but varicose veins and varicocele are still above the average of frequency. Teeth are still better than the average. Hernia and inguinal rings together far exceed expectation in frequency. Malunion of fracture of extremities remains below the average and the loss of whole or part of lower extremity above the average. The ratio for relaxed ligaments of the joint is much more nearly normal (i. e., 0.40), than in group 21. Flat feet is about 4 per 1,000 in excess and pronated feet about 2 per 1,000. Also metatarsalgia is 20 per cent in excess. The population has a smaller proportion than the average of defective physical development and deficient chest measurement and underweight and underheight. Cryptorchidism and harelip are slightly above the average.

Thus group 22, as compared with group 21, tends to approach the average and represents a segment of the population which is, from the military standpoint, good.

#### IV. COMPARISON OF THE INCIDENCE OF PRINCIPAL DISEASES AND DEFECTS IN THE DIFFERENT GROUPS.

1. *Pellagra.*—This is a relatively rare disease in most sections of the country. The highest rate is 0.38 among the agricultural

Negroes and 0.22 among the native white agriculturists in the South. Chart 1 shows that the disease reaches its maximum in the States of Mississippi and Arkansas and is practically confined to the region south of the North Carolina and Tennessee border.

2. *Pulmonary tuberculosis*.—This disease has a ratio of incidence which varies in the different groups from 14.16 per 1,000 among the Finns, 14.36 per 1,000 in the German and Scandinavian group, 13.37 per 1,000 in the Scandinavian group on the one hand, to 72.8 per 1,000 in the desert group, and 55.1 per 1,000 in the Mexican (also a desert) group. The variations in incidence of tuberculosis are partly racial, as no doubt, in the Scandinavian and German-Scandinavian groups, and partly due to selective migration, as in the desert group to which persons with the disease have migrated. It has already been pointed out that the rate for Negroes in the South and its paradoxical result can be explained on the ground of comparative brevity of the disease in the case of Negroes. The incidence of the disease in the mountain group (18.55) is relatively low, and this may well be due to the healthfulness of the conditions.

3. *Veneral diseases*.—Gonococcus infection, the commonest of these diseases, vary in incidence from 8.15 in the German and Scandinavian group and 9.12 in the Scandinavian group to 62.91 in the Negro group of the South. The native white group of the South has a higher incidence of gonococcus infection than the native white group of the North as 33.5 is to 18.5. This does not imply at all any difference in the degree of infection of white stock in the two regions for the so-called native white agricultural group really contains a larger mixture of Negroes. The desert group, which contains relatively few Negroes has, nevertheless, a high incidence of gonococcus infection, namely, 31.35. The rate for the Indian group No. 13, is 40.64, and it seems probable that the high incidence of disease rate in the desert group is due to the admixture of the large number of Indians. The other venereal diseases follow the same general rule as gonococcus infection.

4. *Curvature of the spine* has a ratio which varies from 2.7 in the Mexican group (No. 14), to 7.31 in the French Canadian group. Other low rates are 3.97 in the desert group and 3.15 in the Finn group.

5. *Cancer and other malignant tumors* vary in incidence from 1.43 in the eastern manufacturing group to 0.9 in the mining group. Pre-senile cancer is a mark of degeneration and it is striking therefore to find it combined with curvature of the spine among the French Canadians in such a high degree. The rarity of cancer, as well as curvature of the spine, in the mining and mountain groups is no doubt to be ascribed to the circumstance that only the most vigorous of males find their ways to these sections of the country leaving the weaker ones in the eastern parts of the country and in the cities.

6. *Arthritis*.—The rate for this disease varies from 3.87 in the maritime group to 1.35 in the commuter group, especially around New York City. This large ratio in the maritime group is largely due to the Negroes of the coastal region of Virginia and North Carolina, who are widely infected with a gonococcal arthritis.

7. *Diabetes mellitus* supposed to be a rather uncommon disease, finds its minimum frequency among the Scotch of the South and the agricultural Negroes. It has a maximum rate of 0.50 among the Ger-



mans and Scandinavians of the North. It is well known that diabetes mellitus has a constitutional and hereditary (and therefore doubtless a racial) factor so that its excess among the Germans and Scandinavians is doubtless partly due to racial causes.

8. *Exophthalmic goiter*.—This disease has its maximum frequency (6.68 in the Finn group. This is, however, largely because the Finns occupy only the areas where goiter is exceptionally common. Exophthalmic goiter is found also to a large extent among the Scandinavians (5.03) and in the Russian group (4.66). It is commoner in the mountains (3.67) than at the seacoast (1.39). Its minimum is in the desert group (0.66). Exophthalmic goiter is closely associated with simple goiter which finds its maximum of 20.03 among the Finns and a high rate of 13.90, in the sparsely settled, largely mountainous, nondesert areas of the North. The smallest ratios are found among the Mexicans of the South (0.65) and among the French Canadians (0.42). In general, the rate for both simple and exophthalmic goiter is higher as we approach the northern tier of States spreading from Lake Huron to the Pacific Ocean. A racial element may be present in its distribution since it is commonest among Finns (20 per 1,000), next among Scandinavians (13 per 1,000), next among Germans and Scandinavians (10 per 1,000), native white North agricultural area (5.3 per 1,000), natives of Scotch origin (1.3 per 1,000), and French Canadians (0.4 per 1,000). It is difficult to say whether the high rate for the Scandinavians is due to the fact that they live almost exclusively in the North or whether the high rate of goiter in the Northwest is due to the presence of many Scandinavians there. However, the fact that the rate is higher among Finns than among Germans and Austrians who live in the same general area, indicates that the conditions of the inciting conditions of the goiterous part of the United States influence the production of goiter especially in the Scandinavian and Finnish races.

9. *Obesity* finds its maximum rate (3.7) among the French Canadians and its minimum rate (0.98) among the agricultural Negroes of the South. The mountain whites and desert group each have a low ratio of 1.2 probably influenced by hookworm and tuberculosis.

10. *Alcoholism* varies in incidence from a maximum of 0.91 among the French Canadians to 0.04 among the agricultural Negroes and 0.07 among the mountain whites. The low rate in the South may perhaps be ascribed to the difficulty in getting alcoholic liquors there.

11. *Drug addiction*, which has a higher ratio of incidence in most groups than alcoholism, finds its maximum (0.99) in the desert group. Its minimum is in the Russian group (0.11). The rate is also low among the agricultural Negroes (0.17) and North white agriculturists (0.17). The rate is relatively high in the East manufacturing and the commuter groups (about 1.7). The latter have evidently easy access of it. The high rate in the desert group is probably due to the proximity in this region of the Chinese and centers of the opium trade on the Pacific coast.

The paralyzes vary somewhat in the different groups. Taking monoplegia as a type, we find its highest rate (1.7) among the French Canadians and its lowest rate (0.99) in the Scotch section. Other low rates are found in the mining section among the mountain whites and in the German and Austrian group. The maritime group on the



whole is characterized by a high rate of the paralyses and the Scotch group by a low rate.

12. *Epilepsy* varies from a ratio of 6.66 among the agricultural whites of the North and 7.17 in the maritime group to 2.86 among the Finns and 6.11 in the French Canadian group. The agricultural whites of the South have a higher ratio (5.6) than the Negroes (5.1). The high rate in the maritime group may result in part from in-breeding.

13. *Defective speech* varies in incidence from 1.81 among the native whites of Scotch origin to 0.41 in the desert group. Other low ratios are 0.85 in the commuter group and mining sections and 0.47 and 0.57 in the Mexican and Indian groups, respectively.

14. *Deaf-mutism* has a maximum ratio of 1.17 among the French Canadians and 1.16 among the agriculturists of the North. It is relatively much commoner among the white than the Negro agriculturists of the South as 1.0 is to 0.6. Deaf-mutism is partly of syphilitic origin but very largely a racial matter and its high incidence among the French Canadians is indicative of a diathesis in that race.

15. *Mental deficiency* has always a high ratio. This varies greatly from 27.2 in the mountain whites to 8.34 in the Mexican group. Other low ratios are 8.66 among the Finns and 9.71 in the commuter district. Of the agricultural group, the southern whites have a ratio of 18.9 and the Negroes of 20.1. As a leading psychosis, the distribution of dementia precox is instructive. Its maximum ratio is 1.2 among the Finns, but this is based on small numbers. There is a ratio of 1 in the eastern manufacturing group and of 0.17 in the desert group. The Scotch group (No. 15) has a ratio of 0.29, French Canadians of 0.99. The incidence of this disease is primarily racial and the Scotch seem to be especially free from it. In the South, the white group has a ratio of 0.48 and the Negro group of 0.67.

16. *Defective vision*.—The highest ratio for this defect is found in the French-Canadian group (54.1). A high rate is found in the eastern manufacturing group, which includes many French Canadians and Polish Jews. The lowest defect rate is found among the Finns (23.1), and among the natives of Scotch origin (23.1). In the South the native whites have a ratio of 22.1 and the Negroes of 20. The Scotch show throughout the best condition of vision. Trachoma is a disease which prevails in the South. A high ratio (3.3) is found among the white agriculturists of the South in contrast to 0.6 in the Negroes. The mountain whites, however, have a still higher ratio of 5, but the highest of all is found in the Indian group, of 8.2. On the contrary, the east manufacturing group has a ratio of only 0.45 and the maritime group of 0.05. This, however, includes only small numbers. The differences in ratio between whites and Negroes indicate the latter group to be somewhat immune.

17. *Blindness*, usually due to accident or, in some cases, to gonococcic infection, is found especially in the Indian and Mexican groups and also that of the native whites of Scotch origin. The rate is low in the eastern manufacturing and commuter sections. The Germans and Austrians have much less blindness than the Finns and French Canadians.

18. *Otitis media*, the greatest disease defect of the ear, varies in rate from 12.44 among the French Canadians and 11.44 in the com-

muter group to 2.93 among the Negroes of the South, where the rate is in contrast to 4.94 among the whites. The high rate in the com-muter group, as well as the eastern manufacturing group, is due to the prevalence of otitis media among recent immigrants from southeastern Europe. The figures indicate also that the rate is especially high in the French-Canadian group. The high rate in this group is partly due to the fact that the Canadian French living in manufacturing areas commingle with races of southeastern Europe. Otitis media is relatively uncommon in the agricultural areas as contrasted with the mining and desert areas. Defective hearing finds its maximum ratio (8.95) among the French Canadians. The German-Austrian group has a relatively low ratio of 5.3 and the Russian still lower (5.2). The Mexican district has the minimum, of 3.8. The rate for defective hearing is relatively high in the desert group (8.5), possibly associated with tuberculosis, and low among the Negroes of the South (4.32) in contrast with the southern white agriculturists (5.3).

19. *Hypertrophic tonsillitis* is one of the commonest defects recorded. It has a ratio of 38 among the Russians and of only 13.6 among the German-Austrian group. A low rate is found in the mixed agricultural population of the North (20.2). The native white agricultural group of the South gives a ratio of 25.8, whereas the Negroes have a ratio of only 21.4. Here again the throat, like the eyes and ears, shows itself less liable to disease among the Negroes than the whites. The maximum rate among the occupational groups is 33.6 in the mining group, but it can not be said whether or not this is associated with the mining industry.

20. *Valvular diseases of the heart* reach a maximum in the French-Canadian group and are relatively fewer in the German-Scandinavian group. The ratios in the desert are, for the most part, rather low and in the sparsely settled mountainous areas rather high. Mitral insufficiency is slightly commoner among the Negroes of the South than among the whites, but there is much more of it in the North, both in the agricultural and urban districts, than there is in the South. Valvular diseases of the heart are largely due to focal infections, which are apparently more apt to occur in urban sections than in rural districts. Tachycardia is a typical functional cardiac disorder. It varies in rate from 6.18 in the German-Scandinavian group to 2.13 in the Mexican group and 3.9 among the French Canadians. It is commoner among the North agriculturists than among those of the South, and in the South the rate among the whites is 3.9 as contrasted with 4.8 among the Negroes. The rate is relatively high (6.16) in the maritime districts. In general, tachycardia may be regarded as a disease that predominates in the more highly organized centers of the country.

21. *Defective and deficient teeth*.—The highest ratio recorded for this defect in the occupational series is in the eastern manufacturing group. They are relatively uncommon among the agricultural whites of the North, especially of the native stock. In the South the ratio is 7.9 for whites, 11.3 for Negroes. These differences are remarkable in view of the fact that the Negro teeth show an extraordinary natural resistance to caries. The cause among Negroes is probably more apt to be in the deficient group than in the group of defective teeth. The French Canadians have an extraordinarily high rate of 39.7 in con-



trast with that of the native Scotch origin (8.6) and the inhabitants of the Mexican group (3.5). The rates of 26.0 in the eastern manufacturing group and 22.3 in the commuter group would seem to support the idea that defective and deficient teeth are associated with high industrial or social organization, but these rates may depend also on the racial peculiarities of the population.

22. *Hernia and enlarged inguinal rings* constitute the second most common defect in our population of military age. The rate for the two combined reaches 43.0 for the French Canadian group in contrast with 34.5 for the German-Austrian group and 23.0 for the natives of Scotch origin. The rate is about the same in whites as in Negroes of the South, but it is higher for the commuter group (49.3) than for the north agricultural group (35.10). Among the dwellers in the sparsely settled mountainous district the rate rises to 67.0.

23. *Diseases of the urethra* occur most commonly in the native white agricultural sections of the North, with a ratio of 1.07. They are found least commonly in the eastern manufacturing and mining sections. The numbers are in any case small, so that not much stress is to be laid upon the differences.

24. *Hydrocele* appears to be commoner in the Negro sections than in the agricultural white sections of the South in the proportion of 1.44 to 1.05. The lowest rate is found in the sections characterized by a high proportion of Finns (ratio of 0.95), whereas the sections characterized by a high proportion of Germans and Scandinavians show a ratio of 1.46.

25. *Malunion of fractures of the lower extremity* is much more common than that of the upper extremity. Taking the former as a fair example of both, we find a high percentage of such malunion among the agricultural Negroes of the South (3.1 per 1,000) and relatively less among the whites (2.8). In the eastern manufacturing groups and commuter groups the ratios are much less (2.3 and 1.8, respectively). In the mining sections the ratio rises to 3.2, owing, no doubt, to the liability to fracture of appendages and the difficulty in remote regions of securing proper surgical aid. Among the different nationalities we find that the sections with a large proportion of Finns have a high ratio (4.03), doubtless due to the fact that these are also mining sections; whereas in the sections including a large proportion of native whites of Scotch origin the ratio is (1.7); these include agricultural peoples.

26. *Shortening of the lower extremity* is a fairly common defect. It runs in a remarkable uniformity with a ratio of about 3.4 in the various occupational sections. The ratio is relatively high among the French Canadians (4.2) and low in the German-Austrian sections (2.9).

27. *Loss of whole or part of lower extremity* shows a much greater variety than the shortening of lower extremity. Thus, in the occupational series we find a ratio of 4.2 in the native white agricultural sections of the North and of 3.0 in the black belt of the South, and still less (2.7) in the commuter sections of the North. The Indian sections show a relatively high ratio (4.4), and the German and Scandinavian sections relatively low ratio (2.5). This variation marks merely the obviously greater hazard to limbs in the frontier States as compared with the agricultural States in the center of the country.



28. *Bony ankylosis of joint* shows no extreme variations in the ratio of incidence. This ratio is high in the native white agricultural sections of the South (4.4) and low in the commuter sections (3.1). In the desert sections the ratio is higher (4.9) than in the maritime sections (4.0). The maximum ratio is found in the Indian sections (6.3), while in the section containing a large proportion of native whites of Scotch origin the ratio is only 3.2 per 1,000 and still less (2.3) in the sections containing a large proportion of Mexicans.

29. *Pes planus*.—Passing now to *pes planus*, the greatest defect in the American population, in the occupational series the ratio varies from 119 per 1,000 in the mining sections to 75 per 1,000 in the negro agricultural sections. In the geographical series we have a ratio of 146 per 1,000 in the sparsely settled sections in contrast with 113 per 1,000 in the maritime sections and only 70 in those occupied by mountain whites. In the racial series there is a maximum ratio of 128 in the Scandinavian sections and of only 60 in those containing a large proportion of Scotch agriculturists. The German-Austrian sections have the rather high ratio of 124 per 1,000. This table merely confirms the findings of other tables, that flat foot is much more abundant in the North than in the South, probably because shoes are more nearly universally worn in the North. This is why the people of the large cities show the highest ratio of all because among them shoes, and especially fashionable shoes, are most nearly universally found; also, a large proportion of them are clerks who use their feet for standing rather than for walking.

30. Of other foot defects hallux valgus and *hammertoe* may be considered together. In the occupational series the ratio is highest in the mining group (8.4) and lowest in the native white agricultural group of the South (5.3). The eastern manufacturing group stands high, with a ratio of 7.7. Agricultural sections in general have rather low ratios. In the geographical series the maritime group far outstrips all others, with a ratio of 17.8, a result which is largely due to the influence of the conditions in the State of Virginia (rate of 29.8 in section I). There is relatively less in the mountain group (7.7). In the racial series the highest ratio is found in the Russian group (10.0), and the next highest in the French-Canadian group (9.2). The lowest ratios are found in the Mexican group and in that of native whites of Scotch origin, each 2.7.

31. *Pronated foot*, a form of flat foot, is commonest in the eastern manufacturing group, with a ratio of 11.5. It is least common in the native white agriculturists of the South (4.5). In the geographical series the ratio is highest in the maritime group (13.5) and lowest in the sparsely settled group (1.3). In the racial series the highest ratio is found in the French-Canadian group (16.98). The next highest ratio is found in the Russian group (13.3). On the other hand the German and Scandinavian groups have a low ratio (about 1.2), but still lower is the ratio in the Mexican group (0.7). The negroes have a higher proportion than whites of the South, as indicated by comparison of groups 4 and 3, with ratios of 6.0 and 4.5, respectively.

32. Of *deformities of the hand, including loss of fingers*, the highest ratio in the occupational series is found in the agricultural group of the North of mixed foreign and native stocks (9.0). The ratio is also high in the mining group (8.7). Relatively low ratios are

found in the commuter group (6.3). In the geographical series the highest ratio is found in the sparsely settled and desert groups, each of which has a ratio of about 10 per 1,000. The mountain whites have a ratio of only about 3.2. In the racial series we find, first, that the negroes of the South have a slightly higher ratio than the white agriculturists (as 7.5 is to 7.3). The Finns have a high ratio of 10.9 (probably due to their prevailing occupation of mining), while the Scotch group has a ratio of 7.0.

33. *Deformity of the lower extremity* is commonest among the agricultural negroes of the South and least common in the commuter groups of the North. The agricultural groups in general stand rather high in respect to this defect as compared with the cities and manufacturing districts. There is relatively much of such deformity in the mountain groups and relatively little in the maritime groups. This defect is high in the Russian group (5.8) and low in the Mexican group (4.3) and in the German-Austrian group, over 20 per cent (4.3). In general the persons with deformity of the lower extremities are found more commonly in farming occupations than in urban districts, and those races that are engaged in the more hazardous occupations of mining and lumbering have more of the defect than those which are more strictly agricultural.

34. *Atrophy of muscle of extremity* is found in the occupational series most commonly in the agricultural whites of the North (3.7) and least commonly in the negroes of the South (1.8). As this is largely a hereditary defect, the marked difference between the whites and negroes in respect to the incidence of such atrophy has probably a constitutional basis. The ratio is relatively high in the maritime group (3.8) and low in the sparsely settled and desert groups (2.0 and 2.3, respectively). The ratio is high in the French-Canadian group (4.4) and low in the Mexican group (1.6). It is also relatively low in group No. 20 (German and Austrian, over 20 per cent), which has a ratio of 2.2.

35. *Under weight* is one of the large causes of rejection. This was found most commonly in the eastern manufacturing section of the occupational series (38.8) and less commonly in the mixed, foreign, and native agricultural group of the North (20.9), while in the mining group a ratio of only 18.6 was discovered. In the occupational series the maritime group gives a ratio of 36.9 and the mountain whites of 34.5. On the other hand, in the sparsely settled group the ratio falls to 17.6. In the racial series the defect was found most frequently in the French Canadian group (66.3) and least commonly in the Finn group (12.8). The various groups containing a large proportion of Germans stand relatively low in respect to this defect. The group of Scotch sections stands relatively high (35.7). The northern agricultural sections have a relatively smaller proportion of under weight than the southern agricultural groups, probably due to malaria, hookworm, and other parasitic diseases that are commoner in the South than in the North.

36. *Under height* was found most commonly in the eastern manufacturing group (5.8) and least so in the white agriculturists of the South (1.7). Of the geographical series, under height was found most commonly in the maritime group and least commonly in the sparsely settled districts of the West. This difference is clearly due



to a difference in the constitution of the population, the shorter races being found along the Atlantic coast in greater proportion than they are in the interior of the country. The largest proportion of under height among the races was found in the French Canadian group (8.2) and the lowest ratio in the German and Scandinavian group (1.6). The Scotch group showed a defect ratio of 2.4, which is somewhat higher than that of the Scandinavian and German. In the South a larger proportion of negroes was apparently rejected for underheight than in the native white agriculturists, in the ratio of 2.2 for group 4 to 1.7 for group 3.

37. *Cryptorchidism* shows the highest ratio in the occupational series in the eastern manufacturing group (2.8). The ratio is also high in the mining group (2.7). It is lowest in the native white agricultural group (2.3). The ratio is high in the desert group (3.3) and relatively low in the maritime (2.9). It is still lower among the mountain whites (2). The ratio is high among the Finns (3.6) and low in the Scotch group (1.8). The ratio runs fairly high in the Scandinavian and Scandinavian plus German groups (3.1). There is 50 per cent more of it found in the white agricultural groups (2.3) of the South than in the Negro agricultural groups (1.6).

38. *Cleft palate and harelip* is a pair of related constitutional defects. In the occupational series they are found most commonly in the native white agricultural group of the North (0.88). They are relatively less common among the Negroes (0.35) and in the commuter group, also 0.35. In the mountain group the ratio is fairly high (0.59) and relatively low in the desert group (0.33). Among the different races the Finns show the highest defect rate (1.1), while the different German groups have a relatively small defect rate (varying from 0.47 to 0.67).

39. Of total defects found in the occupational series, we have the highest ratio in the eastern manufacturing group and the lowest rate in the mining group. Relatively low ratios are found in the northern agricultural mixed and foreign and native and in the native white groups. Of the geographical series, the highest ratio is found in the maritime group and also a high ratio is found in the mountain whites. On the other hand, in the sparsely settled districts the general defect rate is low (42 per 1,000). In the different racial groups we find the highest defect rate among the French Canadian group (109 per 1,000) and the lowest in the Finn and Mexican groups (38 per 1,000). The defect ratio in the Scandinavian group is fairly low (47 per 1,000); in the Russian group it is 45 per 1,000; and in the various German groups the defect rate varies from 42 to 48 per 1,000. The agricultural Negroes of the South have a defect rate of 57.5 per 1,000 and the agricultural whites of the same district of 56.9 per 1,000, or about the same as the Negroes. The defect rate of the mountain whites is 71 per 1,000, as contrasted with the native white agriculturists of the South (57 per 1,000).

Thus we see that the defect rate is greater in the cities or the more crowded eastern sections of the country than in the agricultural and frontier sections, and it has not been increased by the influx of Scandinavian and German peoples into this country. Of all groups, the French Canadian shows itself, as has been already pointed out, the highest in proportion of all defects.



TABLE 99.—*Pellagra.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	3	0.01	0.03	Mountain whites.....	28	0.38	0.68
Agricultural, foreign and native white.....	1	.00	.01	Indian, sparsely settled....	16	.50	.95
Agricultural, native white, South.....	96	.22	.43	Mexican, sparsely settled....	4	.14	.31
Agricultural, negro, 45 per cent plus.....	69	.38	.69	Native white, Scotch origin.....	9	.17	.35
Eastern manufacturing.....	1	.00	.01	Russian, 10 per cent plus.....			
Commuters.....				Scandinavian, 10 per cent.....			
Mining.....	10	.10	.18	Finns, 10 per cent.....			
Sparsely settled, 3 or less per square mile.....	1	.02	.04	French Canadians, 10 per cent plus.....	1	.01	.02
Desert.....	1	.08	.12	German and Scandinavian, each 10 per cent plus.....			
Maritime.....				German and Austrian, 20 per cent plus.....			
Mountain.....	4	.08	.13	German and Austrian, 15 per cent plus.....			

TABLE 100.—*Pulmonary and suspected tuberculosis.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	5,351	26.50	50.05	Mountain whites.....	2,120	29.13	51.27
Agricultural, foreign and native white.....	6,268	21.39	40.60	Indian, sparsely settled....	927	29.17	54.89
Agricultural, native white, South.....	11,871	27.64	53.52	Mexican, sparsely settled....	1,743	62.94	133.25
Agricultural, negro, 45 per cent plus.....	4,550	25.25	45.68	Native white, Scotch origin.....	1,900	35.01	74.00
Eastern manufacturing.....	5,557	24.91	41.92	Russian, 10 per cent plus....	971	25.55	43.16
Commuters.....	1,709	23.05	42.82	Scandinavian, 10 per cent.....	3,212	20.46	37.66
Mining.....	2,251	23.53	41.36	Finns, 10 per cent.....	256	18.78	36.16
Sparsely settled, 3 or less per square mile.....	1,332	29.49	51.45	French Canadians, 10 per cent plus.....	2,525	27.33	39.95
Desert.....	1,096	90.67	135.49	German and Scandinavian, each 10 per cent plus.....	2,001	20.29	39.20
Maritime.....	636	31.60	46.14	German and Austrian, 20 per cent plus.....	1,958	19.71	38.54
Mountain.....	1,374	26.06	45.60	German and Austrian, 15 per cent plus.....	6,843	19.46	36.07

TABLE 101.—*Total tuberculosis.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	6,096	30.19	57.02	Mountain whites.....	2,535	34.83	61.31
Agricultural, foreign and native white.....	7,183	24.51	46.53	Indian, sparsely settled....	1,026	32.28	60.75
Agricultural, native white, South.....	13,300	30.97	59.96	Mexican, sparsely settled....	1,823	65.83	139.37
Agricultural, Negro, 45 per cent plus.....	5,116	28.39	51.36	Native white, Scotch origin.....	2,127	39.19	82.84
Eastern manufacturing.....	6,378	28.59	48.11	Russian, 10 per cent plus....	1,084	28.52	48.18
Commuters.....	1,926	25.93	48.26	Scandinavian, 10 per cent.....	3,838	24.45	45.00
Mining.....	2,503	26.16	45.99	Finns, 10 per cent.....	310	22.74	43.79
Sparsely settled, 3 or less per square mile.....	1,466	32.46	56.63	French Canadian, 10 per cent plus.....	2,932	31.74	46.39
Desert.....	1,144	94.64	141.42	German and Scandinavian, each 10 per cent plus.....	2,394	24.27	46.90
Maritime.....	715	35.52	51.87	German and Austrian, 20 per cent plus.....	2,299	23.14	45.25
Mountain.....	1,553	29.45	51.54	German and Austrian, 15 per cent plus.....	7,909	22.49	41.69

TABLE 102.—*Syphilis.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	1,091	5.40	10.20	Mountain whites.....	427	5.87	10.33
Agricultural, foreign and native white.....	955	3.26	6.19	Indian, sparsely settled....	492	15.48	29.13
Agricultural, native white, South.....	3,770	8.78	17.00	Mexican, sparsely settled....	142	5.13	10.86
Agricultural, Negro, 45 per cent plus.....	3,503	19.44	35.17	Native white, Scotch origin.	453	8.35	17.64
Eastern manufacturing.....	831	3.72	6.27	Russian, 10 per cent plus....	95	2.50	4.22
Commuters.....	232	3.15	5.81	Scandinavian, 10 per cent....	325	2.07	3.81
Mining.....	937	9.79	17.22	Finn, 10 per cent.....	46	3.37	6.50
Sparsely settled, 3 or less per square mile.....	142	3.14	5.48	French Canadian, 10 per cent plus.....	308	3.33	4.87
Desert.....	68	5.63	8.41	German and Scandinavian, each 10 per cent plus.....	164	1.66	3.21
Maritime.....	169	8.39	12.26	German and Austrian, 20 per cent plus.....	702	7.07	13.82
Mountain.....	220	4.17	7.30	German and Austrian, 15 per cent plus.....	1,547	4.40	8.16

TABLE 103.—*Chancroid.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	125	0.62	1.17	Mountain whites.....	88	1.21	2.13
Agricultural, foreign and native white.....	124	.42	.80	Indian, sparsely settled....	57	1.79	3.38
Agricultural, native white, South.....	539	1.25	2.43	Mexican, sparsely settled....	29	1.05	2.22
Agricultural, Negro, 45 per cent plus.....	570	3.14	5.72	Native white, Scotch origin.	65	1.20	2.53
Eastern manufacturing.....	121	.54	.91	Russian, 10 per cent plus....	23	.61	1.02
Commuters.....	31	.42	.78	Scandinavian, 10 per cent....	27	.17	.32
Mining.....	93	.97	1.71	Finns, 10 per cent.....	7	.51	.99
Sparsely settled, 3 or less per square mile.....	10	.22	.39	French Canadians, 10 per cent plus.....	21	.23	.33
Desert.....	8	.06	.99	German and Scandinavian, each 10 per cent plus.....	15	.15	.29
Maritime.....	32	1.59	2.32	German and Austrian, 20 per cent plus.....	83	.84	1.63
Mountain.....	16	.30	.53	German and Austrian, 15 per cent plus.....	198	.56	1.04

TABLE 104.—*Gonococcus infection.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	3,726	18.45	34.85	Mountain whites.....	1,735	23.84	41.96
Agricultural, foreign and native white.....	4,449	15.18	28.82	Indian, sparsely settled....	1,292	40.64	76.50
Agricultural, native white, South.....	14,396	33.52	64.90	Mexican, sparsely settled....	996	35.96	76.14
Agricultural, Negro, 45 per cent plus.....	11,338	62.91	113.83	Native white, Scotch origin.	1,148	21.15	44.71
Eastern manufacturing.....	3,329	14.91	25.11	Russian, 10 per cent plus....	495	13.02	22.01
Commuters.....	1,001	13.50	25.08	Scandinavian, 10 per cent....	1,432	9.12	16.79
Mining.....	2,217	23.17	40.73	Finns, 10 per cent.....	166	12.18	23.45
Sparsely settled, 3 or less per square mile.....	561	12.42	21.67	French Canadians, 10 per cent plus.....	1,017	11.01	16.09
Desert.....	379	31.35	46.85	German and Scandinavian, each 10 per cent plus.....	804	8.15	15.75
Maritime.....	915	45.45	66.38	German and Austrian, 20 per cent plus.....	1,946	19.60	38.30
Mountain.....	687	13.03	22.80	German and Austrian, 15 per cent plus.....	5,746	16.34	30.29

TABLE 105.—*Total venereal diseases.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	4,942	24.47	46.22	Mountain whites.....	2,250	30.92	54.42
Agricultural, foreign and native white.....	5,528	18.86	35.81	Indian, sparsely settled....	1,841	57.91	109.01
Agricultural, native white, South.....	18,705	43.55	84.33	Mexican, sparsely settled....	1,167	42.14	89.22
Agricultural, Negro, 45 per cent plus.....	15,411	85.49	154.72	Native white, Scotch origin..	1,666	30.70	64.88
Eastern manufacturing.....	4,281	19.17	32.29	Russian, 10 per cent plus....	613	16.13	27.25
Commuters.....	1,264	17.05	31.67	Scandinavian, 10 per cent....	1,784	11.36	20.92
Mining.....	3,247	33.93	59.66	Finns, 10 per cent.....	219	16.06	30.94
Sparsely settled, 3 or less per square mile.....	713	15.78	27.54	French Canadians, 10 per cent plus.....	1,346	14.57	21.29
Desert.....	455	37.64	56.25	German and Scandinavian, each 10 per cent plus.....	983	9.96	19.25
Maritime.....	1,116	55.43	80.96	German and Austrian, 20 per cent plus.....	2,731	27.51	53.75
Mountain.....	923	17.50	30.63	German and Austrian, 15 per cent plus.....	7,491	21.30	39.49

TABLE 106.—*Alcoholism.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	50	0.25	0.47	Mountain whites.....	5	.07	.12
Agricultural, foreign and native white.....	62	.21	.40	Indian, sparsely settled....	3	.09	.18
Agricultural, native white, South.....	60	.14	.27	Mexican, sparsely settled....	5	.18	.38
Agricultural, Negro, 45 per cent plus.....	8	.04	.08	Native white, Scotch origin..	22	.41	.86
Eastern manufacturing.....	134	.60	1.01	Russian, 10 per cent plus....	8	.21	.36
Commuters.....	36	.49	.90	Scandinavian, 10 per cent....	29	.18	.34
Mining.....	17	.18	.31	Finns, 10 per cent.....	5	.37	.71
Sparsely settled, 3 or less per square mile.....	8	.18	.31	French Canadians, 10 per cent plus.....	84	.91	1.33
Desert.....	2	.17	.25	German and Scandinavian, each 10 per cent plus.....	22	.22	.43
Maritime.....	4	.20	.29	German and Austrian, 20 per cent plus.....	38	.38	.75
Mountain.....	7	.13	.23	German and Austrian, 15 per cent plus.....	104	.30	.53

TABLE 107.—*Drug addiction.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	34	0.17	0.32	Mountain whites.....	24	0.33	0.58
Agricultural, foreign and native white.....	75	.26	.49	Indian, sparsely settled....	20	.63	1.18
Agricultural, native white, South.....	169	.39	.76	Mexican, sparsely settled....	24	.87	1.83
Agricultural, Negro, 45 per cent plus.....	31	.17	.31	Native white, Scotch origin..	17	.31	.66
Eastern manufacturing.....	146	.65	1.10	Russian, 10 per cent plus....	4	.11	.13
Commuters.....	54	.73	1.35	Scandinavian, 10 per cent....	54	.34	.63
Mining.....	23	.24	.42	Finns, 10 per cent.....	3	.22	.42
Sparsely settled, 3 or less per square mile.....	16	.35	.62	French Canadians, 10 per cent plus.....	38	.41	.60
Desert.....	12	.99	1.48	German and Scandinavian, each 10 per cent plus.....	14	.14	.27
Maritime.....	4	.20	.29	German and Austrian, 20 per cent plus.....	60	.60	1.18
Mountain.....	21	.40	.70	German and Austrian, 15 per cent plus.....	155	.44	.82



TABLE 108.—*Total vices.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus.	5,026	24.89	49.01	Mountain whites.	2,279	31.32	55.12
Agricultural, foreign and native white.	5,665	19.33	36.70	Indian, sparsely settled.	1,864	58.63	110.37
Agricultural, native white, South.	18,934	44.08	85.36	Mexican, sparsely settled.	1,196	43.19	91.43
Agricultural, Negro, 45 per cent plus.	15,450	85.70	155.11	Native white, Scotch origin.	1,705	31.42	66.40
Eastern manufacturing.	4,561	20.42	34.40	Russian, 10 per cent plus.	625	16.45	27.79
Commuters.	1,354	18.27	33.92	Scandinavian, 10 per cent.	1,867	11.78	21.89
Mining.	3,287	34.35	60.39	Finns, 10 per cent.	227	16.65	32.07
Sparsely settled, 3 or less per square mile.	737	16.31	28.47	French Canadians, 10 per cent plus.	1,468	15.89	23.22
Desert.	409	38.80	57.93	German and Scandinavian, each 10 per cent plus.	1,019	10.32	19.95
Maritime.	1,124	55.83	81.54	German and Austrian, 20 per cent plus.	2,829	28.49	55.68
Mountain.	951	18.03	31.56	German and Austrian, 15 per cent plus.	7,750	22.04	40.86

TABLE 109.—*Curvature of the spine.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent, plus.	1,293	6.40	12.09	Mountain, whites.	463	6.36	11.20
Agricultural, foreign and native white.	1,695	5.78	10.98	Indian, sparsely settled.	163	5.13	9.65
Agricultural, native white, South.	2,221	5.17	10.01	Mexican, sparsely settled.	75	2.71	5.73
Agricultural, Negro, 45 per cent, plus.	881	4.89	8.85	Native white, Scotch origin.	280	5.16	10.91
Eastern manufacturing.	1,322	5.92	9.97	Russian, 10 per cent, plus.	194	5.10	8.62
Commuters.	424	5.72	10.62	Scandinavian, 10 per cent.	974	6.20	11.42
Mining.	484	5.06	8.89	Finns, 10 per cent.	43	3.15	6.07
Sparsely settled, 3 or less per square mile.	205	4.54	7.92	French Canadians, 10 per cent, plus.	675	7.31	10.68
Desert.	48	3.97	5.93	German and Scandinavian, each 10 per cent, plus.	701	7.11	13.74
Maritime.	113	5.61	8.20	German and Austrian, 20 per cent, plus.	558	5.62	10.98
Mountain.	295	5.59	9.79	German and Austrian, 15 per cent, plus.	1,984	5.64	10.46

TABLE 110.—*Diabetes mellitus.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent, plus.	48	0.24	0.45	Mountain whites.	12	0.16	0.29
Agricultural, foreign and native white.	115	.39	.74	Indian, sparsely settled.	5	.16	.30
Agricultural, native white, South.	63	.15	.28	Mexican, sparsely settled.	5	.18	.38
Agricultural, Negro, 45 per cent, plus.	23	.13	.23	Native white, Scotch origin.	4	.07	.16
Eastern manufacturing.	110	.49	.83	Russian, 10 per cent, plus.	4	.11	.18
Commuters.	23	.31	.58	Scandinavian, 10 per cent.	65	.41	.76
Mining.	17	.18	.31	Finns, 10 per cent.	2	.15	.28
Sparsely settled, 3 or less per square mile.	9	.20	.35	French Canadians, 10 per cent, plus.	34	.37	.54
Desert.	4	.33	.49	German and Scandinavian, each 10 per cent, plus.	49	.50	.96
Maritime.	5	.25	.36	German and Austrian, 20 per cent, plus.	24	.24	.47
Mountain.	14	.27	.46	German and Austrian, 15 per cent, plus.	125	.36	.66

TABLE 111.—*Goiter Exophthalmic.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	797	3.95	7.46	Mountain whites.....	281	3.86	6.80
Agricultural, foreign and native white.....	1,451	4.95	9.40	Indian, sparsely settled....	42	1.32	2.49
Agricultural, native white, South.....	686	1.60	3.09	Mexican, sparsely settled....	17	.61	1.30
Agricultural, Negro, 45 per cent plus.....	179	.99	1.80	Native white, Scotch origin.	83	1.53	3.23
Eastern manufacturing.....	508	2.28	3.83	Russian, 10 per cent plus...	177	4.66	7.87
Commuters.....	173	2.33	4.33	Scandinavian, 10 per cent..	790	5.03	9.26
Mining.....	297	3.10	5.46	Finns, 10 per cent.....	91	6.63	12.85
Sparsely settled, 3 or less per square mile.....	119	2.63	4.60	French Canadians, 10 per cent plus.....	70	.76	1.11
Desert.....	8	.66	.99	German and Scandinavian, each 10 per cent plus.....	458	4.64	8.97
Maritime.....	28	1.39	2.03	German and Austrian, 20 per cent plus.....	410	4.13	8.07
Mountain.....	246	4.67	8.16	German and Austrian, 15 per cent plus.....	1,539	4.38	8.11

TABLE 112.—*Goiter, simple.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	1,069	5.29	10.00	Mountain whites.....	258	3.54	6.24
Agricultural, foreign and native white.....	2,039	6.96	13.21	Indian, sparsely settled....	37	1.16	2.19
Agricultural, native white, South.....	757	1.76	3.41	Mexican, sparsely settled....	18	.65	1.38
Agricultural, Negro, 45 per cent plus.....	138	.77	1.39	Native white, Scotch origin.	71	1.31	2.77
Eastern manufacturing.....	418	1.87	3.15	Russian, 10 per cent plus...	210	5.52	9.34
Commuters.....	126	1.70	3.16	Scandinavian, 10 per cent..	2,075	13.22	24.33
Mining.....	906	9.47	16.65	Finns, 10 per cent.....	273	20.03	38.56
Sparsely settled, 3 or less per square mile.....	628	13.90	24.25	French Canadians, 10 per cent plus.....	39	.42	.62
Desert.....	36	2.98	4.45	German and Scandinavian, each 10 per cent plus.....	988	10.02	19.36
Maritime.....	14	.70	1.02	German and Austrian, 20 per cent plus.....	638	6.42	12.56
Mountain.....	529	10.03	17.55	German and Austrian, 15 per cent plus.....	2,208	6.28	11.64

TABLE 113.—*Total Goiter.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	1,866	9.24	17.46	Mountain whites.....	539	7.40	13.04
Agricultural, foreign and native white.....	3,490	11.91	22.61	Indian, sparsely settled....	79	2.48	4.68
Agricultural, native white, South.....	1,443	3.36	6.50	Mexican, sparsely settled....	35	1.26	2.68
Agricultural, negro, 45 per cent plus.....	317	1.76	3.19	Native white, Scotch origin.	154	2.84	6.00
Eastern manufacturing.....	926	4.15	6.98	Russian, 10 per cent plus...	387	10.18	17.21
Commuters.....	299	4.03	7.49	Scandinavian, 10 per cent..	2,865	18.25	33.59
Mining.....	1,203	12.57	22.11	Finns, 10 per cent.....	364	26.71	51.41
Sparsely settled, 3 or less per square mile.....	747	16.53	28.85	French Canadians, 10 per cent plus.....	109	1.18	1.73
Desert.....	44	3.64	5.44	German and Scandinavian, each 10 per cent plus.....	1,446	14.66	28.33
Maritime.....	42	2.09	3.03	German and Austrian, 20 per cent plus.....	1,048	10.55	20.63
Mountain.....	775	14.70	25.71	German and Austrian, 15 per cent plus.....	3,747	10.66	19.75

TABLE 114.—*Obesity.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	428	2.12	4.00	Mountain whites.....	85	1.17	2.06
Agricultural, foreign and native white.....	476	1.62	3.08	Indian, sparsely settled....	47	1.43	2.78
Agricultural, native white, South.....	668	1.56	3.01	Mexican, sparsely settled....	28	1.01	2.14
Agricultural, negro, 45 per cent plus.....	176	.98	1.77	Native white, Scotch origin.....	99	1.82	3.86
Eastern manufacturing.....	588	2.64	4.44	Russian, 10 per cent plus.....	60	1.58	2.67
Commuters.....	176	2.37	4.41	Scandinavian, 10 per cent....	265	1.69	3.11
Mining.....	103	1.13	1.98	Finns, 10 per cent.....	26	1.91	3.67
Sparsely settled, 3 or less per square mile.....	71	1.57	2.74	French Canadians, 10 per cent plus.....	344	3.72	5.44
Desert.....	14	1.16	1.73	German and Scandinavian, each 10 per cent plus.....	157	1.59	3.08
Maritime.....	39	1.94	2.83	German and Austrian, 20 per cent plus.....	164	1.65	3.23
Mountain.....	83	1.57	2.75	German and Austrian, 15 per cent plus.....	672	1.91	3.54

TABLE 115.—*Apoplexy and paralytic conditions.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	581	2.88	5.44	Mountain whites.....	138	1.90	3.34
Agricultural, foreign and native white.....	826	2.82	5.35	Indian, sparsely settled....	94	2.96	5.57
Agricultural, native white, South.....	1,171	2.72	5.27	Mexican, sparsely settled....	63	2.28	4.81
Agricultural, Negro, 45 per cent plus.....	434	2.41	4.35	Native white, Scotch origin.....	111	2.04	4.32
Eastern manufacturing.....	604	2.71	4.56	Russian, 10 per cent plus.....	83	2.19	3.69
Commuters.....	196	2.64	4.91	Scandinavian, 10 per cent....	427	2.73	5.01
Mining.....	202	2.11	3.71	Finns, 10 per cent.....	36	2.64	5.09
Sparsely settled, 3 or less per square mile.....	96	2.12	3.72	French Canadians, 10 per cent plus.....	291	3.16	4.61
Desert.....	32	2.65	3.96	German and Scandinavian, each 10 per cent plus.....	279	2.83	5.46
Maritime.....	65	3.23	4.72	German and Austrian, 20 per cent plus.....	265	2.67	5.23
Mountain.....	126	2.39	4.18	German and Austrian, 15 per cent plus.....	966	2.74	5.10

TABLE 116.—*Epilepsy.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	1,345	6.66	12.58	Mountain whites.....	457	6.28	11.05
Agricultural, foreign and native white.....	1,425	4.86	9.23	Indian, sparsely settled....	137	4.31	8.11
Agricultural, native white, South.....	2,425	5.65	10.93	Mexican, sparsely settled....	100	3.61	7.64
Agricultural, Negro, 45 per cent plus.....	925	5.13	9.29	Native white, Scotch origin.....	281	5.18	10.94
Eastern manufacturing.....	944	4.23	7.12	Russian, 10 per cent plus.....	168	4.42	7.47
Commuters.....	339	4.57	8.49	Scandinavian, 10 per cent....	607	3.87	7.12
Mining.....	365	3.82	6.71	Finns, 10 per cent.....	39	2.86	5.51
Sparsely settled, 3 or less per square mile.....	156	3.45	6.02	French Canadians, 10 per cent plus.....	564	6.11	8.92
Desert.....	47	3.89	5.81	German and Scandinavian, each 10 per cent plus.....	394	3.99	7.72
Maritime.....	144	7.15	10.45	German and Austrian, 20 per cent plus.....	480	4.83	9.45
Mountain.....	271	5.14	8.99	German and Austrian, 15 per cent plus.....	1,654	4.70	8.72



TABLE 117.—*Chorea.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	53	0.26	0.50	Mountain whites.....	26	.36	.63
Agricultural, foreign and native white.....	81	.28	.52	Indian, sparsely settled....	3	.09	.18
Agricultural, native white, South.....	95	.22	.43	Mexican, sparsely settled....	7	.25	.54
Agricultural, Negro, 45 per cent plus.....	36	.20	.36	Native white, Scotch origin..	15	.28	.58
Eastern manufacturing.....	45	.22	.34	Russian, 10 per cent plus....	4	.11	.18
Commuters.....	13	.18	.33	Scandinavian, 10 per cent...	52	.33	.61
Mining.....	13	.14	.24	Finns, 10 per cent.....	5	.37	.71
Sparsely settled, 3 or less per square mile.....	7	.15	.27	French Canadians, 10 per cent plus.....	25	.27	.40
Desert.....	2	.17	.25	German and Scandinavian, each 10 per cent plus.....	36	.36	.71
Maritime.....	6	.30	.44	German and Austrian, 20 per cent plus.....	27	.27	.53
Mountain.....	11	.21	.37	German and Austrian, 15 per cent plus.....	86	.24	.45

TABLE 118.—*Neurasthenia, hysteria, neurosis.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	171	0.84	1.60	Mountain whites.....	80	1.09	1.94
Agricultural, foreign and native white.....	287	.98	1.87	Indian, sparsely settled....	18	.56	1.06
Agricultural, native white, South.....	341	.79	1.54	Mexican, sparsely settled....	6	.22	.46
Agricultural, Negro, 45 per cent plus.....	170	.95	1.70	Native white, Scotch origin..	33	.60	1.28
Eastern manufacturing.....	221	.99	1.67	Russian, 10 per cent plus....	23	.61	1.02
Commuters.....	57	.77	1.44	Scandinavian, 10 per cent...	109	.70	1.28
Mining.....	74	.78	1.36	Finns, 10 per cent.....	6	.44	.84
Sparsely settled, 3 or less per square mile.....	18	.40	.70	French Canadians, 10 per cent plus.....	119	1.29	1.88
Desert.....	3	.25	.37	German and Scandinavian, each 10 per cent plus.....	75	.76	1.47
Maritime.....	14	.70	1.01	German and Austrian, 20 per cent plus.....	61	.61	1.21
Mountain.....	38	.71	1.27	German and Austrian, 15 per cent plus.....	254	.72	1.34

TABLE 119.—*Nervous disorders.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	2,150	10.64	20.12	Mountain whites.....	701	9.63	16.96
Agricultural, foreign and native white.....	2,619	8.94	16.97	Indian, sparsely settled....	252	7.92	14.92
Agricultural, native white, South.....	4,032	9.38	18.17	Mexican, sparsely settled....	176	6.36	13.45
Agricultural, Negro, 45 per cent plus.....	1,565	8.69	15.70	Native white, Scotch origin..	440	8.10	17.12
Eastern manufacturing.....	1,814	8.15	13.69	Russian, 10 per cent plus....	278	7.33	12.36
Commuters.....	605	8.16	15.17	Scandinavian, 10 per cent...	1,195	7.63	14.02
Mining.....	654	6.85	12.02	Finns, 10 per cent.....	86	6.31	12.15
Sparsely settled, 3 or less per square mile.....	277	6.12	10.71	French Canadians, 10 per cent plus.....	999	10.83	15.81
Desert.....	84	6.96	10.39	German and Scandinavian, each 10 per cent plus.....	784	7.94	15.36
Maritime.....	229	11.38	16.62	German and Austrian, 20 per cent plus.....	833	8.38	16.42
Mountain.....	446	8.45	14.81	German and Austrian, 15 per cent plus.....	2,960	8.40	15.61

TABLE 120.—*Speech, defective.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	304	1.51	2.84	Mountain whites.....	93	1.28	2.25
Agricultural, foreign and native white.....	329	1.12	2.13	Indian, sparsely settled....	18	.57	1.07
Agricultural, native white, South.....	505	1.18	2.28	Mexican, sparsely settled....	13	.47	.99
Agricultural, Negro, 45 per cent plus.....	222	1.23	2.23	Native white, Scotch origin.....	98	1.81	3.82
Eastern manufacturing.....	213	.95	1.61	Russian, 10 per cent plus....	39	1.03	1.73
Commuters.....	63	.85	1.58	Scandinavian, 10 per cent....	195	1.24	2.29
Mining.....	81	.85	1.49	Finns, 10 per cent.....	14	1.03	1.98
Sparsely settled, 3 or less per square mile.....	42	.93	1.62	French Canadians, 10 per cent plus.....	129	1.40	2.04
Desert.....	5	.41	.62	German and Scandinavian, each 10 per cent plus.....	137	1.39	2.68
Maritime.....	34	1.69	2.47	German and Austrian, 20 per cent plus.....	94	.95	1.85
Mountain.....	46	.87	1.53	German and Austrian, 15 per cent plus.....	374	1.06	1.97

TABLE 121.—*Deaf and dumb; mute.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	277	1.37	2.59	Mountain whites.....	92	1.27	2.22
Agricultural, foreign and native white.....	280	.96	1.81	Indian, sparsely settled....	36	1.13	2.13
Agricultural, native white, South.....	502	1.17	2.26	Mexican, sparsely settled....	21	.76	1.61
Agricultural, Negro, 45 per cent plus.....	135	.75	1.35	Native white, Scotch origin.....	65	1.20	2.53
Eastern manufacturing.....	258	1.16	1.94	Russian, 10 per cent plus....	41	1.08	1.83
Commuters.....	91	1.22	2.28	Scandinavian, 10 per cent....	138	.88	1.62
Mining.....	70	.74	1.29	Finns, 10 per cent.....	13	.96	1.83
Sparsely settled, 3 or less per square mile.....	34	.75	1.31	French Canadians, 10 per cent plus.....	116	1.26	1.84
Desert.....	9	.74	1.11	German and Scandinavian, each 10 per cent plus.....	95	.96	1.86
Maritime.....	22	1.09	1.60	German and Austrian, 20 per cent plus.....	120	1.21	2.37
Mountain.....	32	.61	1.06	German and Austrian, 15 per cent plus.....	341	.97	1.80

TABLE 122.—*Deaf.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	289	1.43	2.70	Mountain whites.....	142	1.95	3.43
Agricultural, foreign and native white.....	374	1.28	2.42	Indian, sparsely settled....	67	2.11	3.97
Agricultural, native white, South.....	643	1.50	2.90	Mexican, sparsely settled....	34	1.23	2.60
Agricultural, Negro, 45 per cent plus.....	195	1.08	1.96	Native white, Scotch origin.....	124	2.28	4.53
Eastern manufacturing.....	282	1.26	2.13	Russian, 10 per cent plus....	51	1.34	2.27
Commuters.....	90	1.21	2.26	Scandinavian, 10 per cent....	227	1.45	2.66
Mining.....	94	.98	1.73	Finns, 10 per cent.....	14	1.03	1.98
Sparsely settled, 3 or less per square mile.....	54	1.20	2.09	French Canadians, 10 per cent plus.....	159	1.72	2.52
Desert.....	9	.74	1.11	German and Scandinavian, each 10 per cent plus.....	142	1.44	2.78
Maritime.....	33	1.64	2.39	German and Austrian, 20 per cent plus.....	119	1.20	2.34
Mountain.....	84	1.59	2.79	German and Austrian, 15 per cent plus.....	409	1.16	2.16

TABLE 123.—*Defective hearing.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	1,172	5.80	10.96	Mountain whites.....	356	4.89	8.61
Agricultural, foreign and native white.....	1,561	5.33	10.11	Indian, sparsely settled....	159	5.00	9.41
Agricultural, native white, South.....	2,285	5.32	10.30	Mexican, sparsely settled....	105	3.79	8.03
Agricultural, Negro, 45 per cent plus.....	778	4.32	7.81	Native white, Scotch origin..	326	6.01	12.70
Eastern manufacturing.....	1,525	6.83	11.51	Russian, 10 per cent plus....	196	5.16	8.71
Commuters.....	425	5.73	10.65	Scandinavian, 10 per cent....	982	6.26	11.51
Mining.....	483	5.05	8.87	Finns, 10 per cent.....	79	5.80	11.16
Sparsely settled, 3 or less per square mile.....	286	6.33	11.05	French Canadians, 10 per cent plus.....	827	8.95	13.09
Desert.....	103	8.52	12.73	German and Scandinavian, each 10 per cent plus.....	592	6.00	11.60
Maritime.....	103	5.12	7.47	German and Austrian, 20 per cent plus.....	541	5.45	10.65
Mountain.....	373	7.07	12.38	German and Austrian, 15 per cent plus.....	1,849	5.26	9.75

TABLE 124.—*Total disorders of speech and hearing.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	2,042	10.11	19.09	Mountain whites.....	683	9.39	16.51
Agricultural, foreign and native white.....	2,544	8.69	16.47	Indian, sparsely settled....	280	8.81	16.53
Agricultural, native white, South.....	3,935	9.17	17.74	Mexican, sparsely settled....	173	6.25	13.23
Agricultural, Negro, 45 per cent plus.....	1,330	7.38	13.35	Native white, Scotch origin..	613	11.30	23.83
Eastern manufacturing.....	2,278	10.20	17.19	Russian, 10 per cent plus....	327	8.61	14.54
Commuters.....	669	9.01	16.77	Scandinavian, 10 per cent....	1,542	9.83	18.08
Mining.....	728	7.62	13.38	Finns, 10 per cent.....	120	8.82	16.95
Sparsely settled, 3 or less per square mile.....	416	9.21	16.07	French Canadians, 10 per cent plus.....	1,231	13.33	19.49
Desert.....	126	10.41	15.57	German and Scandinavian, each 10 per cent plus.....	966	9.79	18.92
Maritime.....	192	9.54	13.93	German and Austrian, 20 per cent plus.....	874	8.81	17.21
Mountain.....	535	10.14	17.76	German and Austrian, 15 per cent plus.....	2,973	8.45	15.68

TABLE 125.—*Constitutional psychopathic States.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	101	0.50	0.94	Mountain whites.....	31	.43	.75
Agricultural, foreign and native white.....	171	.58	1.11	Indian, sparsely settled....	9	.28	.53
Agricultural, native white, South.....	157	.37	.71	Mexican, sparsely settled....	7	.25	.54
Agricultural, Negro, 45 per cent plus.....	65	.36	.65	Native white, Scotch origin..	26	.48	1.01
Eastern manufacturing.....	92	.41	.69	Russian, 10 per cent plus....	16	.42	.71
Commuters.....	22	.30	.55	Scandinavian, 10 per cent....	74	.47	.87
Mining.....	40	.42	.73	Finns, 10 per cent.....	11	.81	1.55
Sparsely settled, 3 or less per square mile.....	19	.42	.73	French Canadians, 10 per cent plus.....	40	.43	.63
Desert.....	2	.17	.25	German and Scandinavian, each 10 per cent plus.....	43	.44	.84
Maritime.....	5	.25	.36	German and Austrian, 20 per cent plus.....	43	.43	.85
Mountain.....	18	.34	.60	German and Austrian, 15 per cent plus.....	154	.44	.81



TABLE 126.—*Mental deficiency.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus....	3, 732	18. 48	34. 91	Mountain whites.....	1, 979	27. 19	47. 86
Agricultural, foreign and native white.....	4, 705	16. 06	30. 48	Indian, sparsely settled....	460	14. 47	27. 24
Agricultural, native white, South.....	8, 123	18. 91	36. 62	Mexican, sparsely settled....	231	8. 34	17. 66
Agricultural, Negro, 45 per cent plus.....	3, 617	20. 07	36. 31	Native white, Scotch origin..	1, 020	18. 79	39. 73
Eastern manufacturing.....	2, 611	11. 70	19. 70	Russian, 10 per cent plus....	538	14. 15	23. 92
Commuters.....	720	9. 71	18. 04	Scandinavian, 10 per cent..	2, 445	15. 58	28. 67
Mining.....	1, 089	11. 38	20. 01	Finns, 10 per cent.....	118	8. 66	16. 67
Sparsely settled, 3 or less per square mile.....	395	8. 75	15. 26	French Canadians, 10 per cent plus.....	1, 420	15. 37	22. 47
Desert.....	144	11. 91	17. 80	German and Scandinavian, each 10 per cent plus.....	1, 867	18. 93	36. 58
Maritime.....	439	21. 81	31. 85	German and Austrian, 20 per cent plus.....	1, 247	12. 56	24. 54
Mountain.....	766	14. 53	25. 42	German and Austrian, 15 per cent plus.....	4, 621	13. 14	24. 36

TABLE 127.—*Dementia præcox.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus....	134	0. 66	1. 25	Mountain whites.....	31	. 43	0. 75
Agricultural, foreign and native white.....	178	. 61	1. 15	Indian, sparsely settled....	11	. 35	. 65
Agricultural, native white, South.....	207	. 48	. 93	Mexican, sparsely settled....	18	. 65	1. 38
Agricultural, Negro, 45 per cent plus.....	121	. 67	1. 21	Native white, Scotch origin..	16	. 29	. 62
Eastern manufacturing.....	223	1. 00	1. 68	Russian, 10 per cent plus....	23	. 61	1. 02
Commuters.....	59	. 80	1. 48	Scandinavian, 10 per cent..	119	. 76	1. 40
Mining.....	51	. 53	. 94	Finns, 10 per cent.....	16	1. 17	2. 26
Sparsely settled, 3 or less per square mile.....	9	. 20	. 35	French Canadians, 10 per cent plus.....	91	. 99	1. 44
Desert.....	2	. 17	. 25	German and Scandinavian, each 10 per cent plus.....	69	. 70	1. 35
Maritime.....	10	. 50	. 73	German and Austrian, 20 per cent plus.....	85	. 86	1. 67
Mountain.....	23	. 44	. 76	German and Austrian, 15 per cent plus.....	287	. 82	1. 51

TABLE 128.—*Psychasthenia and psychoneuroses.*

Groups.	Total dis-eases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total dis-eases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	81	0. 40	0. 75	Mountain whites.....	49	0. 67	1. 18
Agricultural, foreign and native white.....	133	. 45	. 86	Indian, sparsely settled....	8	. 25	. 47
Agricultural, native white, South.....	239	. 55	1. 08	Mexican, sparsely settled....	3	. 11	. 23
Agricultural, Negro, 45 per cent plus.....	172	. 96	1. 73	Native white, Scotch origin..	23	. 43	. 90
Eastern manufacturing.....	106	. 47	. 80	Russian, 10 per cent plus....	16	. 42	. 71
Commuters.....	42	. 56	1. 05	Scandinavian, 10 per cent..	71	. 45	. 84
Mining.....	61	. 64	1. 12	Finns, 10 per cent.....	6	. 44	. 84
Sparsely settled, 3 or less per square mile.....	24	. 53	. 93	French Canadians, 10 per cent plus.....	54	. 58	. 85
Desert.....	3	. 25	. 37	German and Scandinavian, each 10 per cent plus.....	49	. 50	. 96
Maritime.....	10	. 50	. 72	German and Austrian, 20 per cent plus.....	59	. 59	1. 17
Mountain.....	36	. 68	1. 20	German and Austrian, 15 per cent plus.....	174	. 49	. 91

TABLE 129.—*Psychoses, manic depressive.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	31	0.15	0.29	Mountain whites.....	13	0.18	0.31
Agricultural, foreign and native white.....	79	.27	.51	Indian, sparsely settled....	6	.19	.36
Agricultural, native white, South.....	59	.14	.27	Mexican, sparsely settled....	2	.07	.15
Agricultural, Negro, 45 per cent plus.....	34	.19	.34	Native white, Scotch origin..	10	.18	.39
Eastern manufacturing.....	62	.28	.47	Russian, 10 per cent plus...	8	.21	.36
Commuters.....	20	.27	.50	Scandinavian, 10 per cent...	53	.34	.62
Mining.....	22	.23	.40	Finn, 10 per cent.....	2	.15	.28
Sparsely settled, 3 or less per square mile.....	7	.15	.27	French Canadian, 10 per cent plus.....	23	.25	.36
Desert.....	3	.25	.37	German and Scandinavian, each 10 per cent plus.....	46	.47	.90
Maritime.....	6	.30	.44	German and Austrian, 20 per cent plus.....	24	.24	.47
Mountain.....	11	.21	.37	German and Austrian, 15 per cent plus.....	87	.25	.46

TABLE 130.—*Psychoses, other.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	325	1.61	3.04	Mountain whites.....	79	1.09	1.91
Agricultural, foreign and native white.....	636	2.17	4.12	Indian, sparsely settled....	26	.82	1.54
Agricultural, native white, South.....	552	1.29	2.49	Mexican, sparsely settled....	30	1.03	2.29
Agricultural, Negro, 45 per cent plus.....	171	.95	1.72	Native white, Scotch origin..	87	1.60	3.39
Eastern manufacturing.....	474	2.12	3.58	Russian, 10 per cent plus...	26	.68	1.16
Commuters.....	120	1.62	3.01	Scandinavian, 10 per cent...	241	1.54	2.83
Mining.....	76	.79	1.40	Finn, 10 per cent.....	8	.59	1.13
Sparsely settled, 3 or less per square mile.....	32	.71	1.24	French Canadian, 10 per cent plus.....	200	2.17	3.16
Desert.....	16	1.49	2.23	German and Scandinavian, each 10 per cent plus.....	135	1.37	2.65
Maritime.....	72	1.09	1.60	German and Austrian, 20 per cent plus.....	215	2.17	4.23
Mountain.....	71	1.35	2.36	German and Austrian, 15 per cent plus.....	577	1.64	3.04

TABLE 131.—*Total mental disorders.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	4,404	21.80	41.18	Mountain whites.....	2,182	23.99	52.76
Agricultural, foreign and native white.....	5,902	20.14	38.23	Indian, sparsely settled....	520	16.36	30.79
Agricultural, native white, South.....	9,337	21.74	42.10	Mexican, sparsely settled....	291	10.50	22.25
Agricultural, Negro, 45 per cent plus.....	4,180	23.20	41.96	Native white, Scotch origin..	1,182	21.77	46.04
Eastern manufacturing.....	3,568	15.98	26.92	Russian, 10 per cent plus...	627	16.49	27.88
Commuters.....	983	13.26	24.63	Scandinavian, 10 per cent...	3,003	19.14	35.23
Mining.....	1,339	13.99	24.60	Finn, 10 per cent.....	161	11.82	22.73
Sparsely settled, 3 or less per square mile.....	486	10.76	18.78	French Canadians, 10 per cent plus.....	1,828	19.79	38.91
Desert.....	172	14.24	21.27	German and Scandinavian, each 10 per cent plus.....	2,209	22.41	43.28
Maritime.....	492	24.45	35.70	German and Austrian, 20 per cent plus.....	1,673	16.85	32.93
Mountain.....	925	17.55	30.71	German and Austrian, 15 per cent plus.....	5,900	16.78	31.09

TABLE 132.—*Astigmatism, hyperopia, myopia, and defective vision (cause not stated).*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	5,835	28.89	54.59	Mountain whites.....	1,743	23.94	42.15
Agricultural, foreign and native white.....	8,264	28.21	53.53	Indian, sparsely settled....	767	24.14	45.42
Agricultural, native white, South.....	10,496	24.44	47.31	Mexican, sparsely settled....	523	18.89	39.98
Agricultural, Negro, 45 per cent plus.....	3,947	21.90	39.62	Native white, Scotch origin..	1,375	25.33	53.55
Eastern manufacturing.....	10,670	47.82	80.50	Russian, 10 per cent plus....	1,274	33.52	56.63
Commuters.....	2,873	38.74	71.98	Scandinavian, 10 per cent..	4,334	27.61	50.82
Mining.....	2,610	27.27	47.94	Finns, 10 per cent.....	365	26.77	51.55
Sparsely settled, 3 or less per square mile.....	1,175	26.01	45.38	French Canadians, 10 per cent plus.....	5,632	60.97	89.08
Desert.....	359	29.69	44.37	German and Scandinavian, each 10 per cent plus.....	2,741	27.79	53.70
Maritime.....	733	36.40	53.17	German and Austrian, 20 per cent plus.....	2,851	28.70	56.11
Mountain.....	1,890	35.84	62.73	German and Austrian, 15 per cent plus.....	10,794	30.70	56.91

TABLE 133.—*Trachoma.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	389	1.93	3.64	Mountain whites.....	361	4.96	8.73
Agricultural, foreign and native white.....	170	.58	1.10	Indian, sparsely settled....	259	8.15	15.34
Agricultural, native white, South.....	1,428	3.32	6.44	Mexican, sparsely settled....	43	1.55	3.29
Agricultural, Negro, 45 per cent plus.....	108	.60	1.08	Native white, Scotch origin..	228	4.20	8.88
Eastern manufacturing.....	101	.45	.76	Russian, 10 per cent plus....	83	2.18	3.69
Commuters.....	40	.54	1.00	Scandinavian, 10 per cent..	166	1.06	1.95
Mining.....	84	.88	1.54	Finns, 10 per cent.....	8	.59	1.13
Sparsely settled, 3 or less per square mile.....	51	1.13	1.97	French Canadians, 10 per cent plus.....	40	.43	.63
Desert.....	31	2.56	3.83	German and Scandinavian, each 10 per cent plus.....	66	.67	1.29
Maritime.....	1	.05	.07	German and Austrian, 20 per cent plus.....	71	.71	1.40
Mountain.....	77	1.46	2.56	German and Austrian, 15 per cent plus.....	201	.57	1.06

TABLE 134.—*Amblyopia.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	175	0.87	1.64	Mountain whites.....	84	1.15	2.03
Agricultural, foreign and native white.....	301	1.03	1.95	Indian, sparsely settled....	33	1.04	1.95
Agricultural, native white, South.....	505	1.18	2.28	Mexican, sparsely settled....	42	1.52	3.21
Agricultural, Negro, 45 per cent plus.....	138	.77	1.39	Native white, Scotch origin..	36	.66	1.40
Eastern manufacturing.....	239	1.07	1.80	Russian, 10 per cent plus....	47	1.24	2.09
Commuters.....	76	1.03	1.60	Scandinavian, 10 per cent..	108	.69	1.27
Mining.....	93	.97	1.71	Finns, 10 per cent.....	11	.81	1.55
Sparsely settled, 3 or less per square mile.....	21	.46	.81	French Canadians, 10 per cent plus.....	89	.96	1.41
Desert.....	6	.50	.74	German and Scandinavian, each 10 per cent plus.....	64	.65	1.25
Maritime.....	13	.65	1.33	German and Austrian, 20 per cent plus.....	101	1.02	1.99
Mountain.....	40	.76	1.33	German and Austrian, 15 per cent plus.....	363	1.03	1.91



TABLE 135.—*Eye, enucleation of; blindness in one eye; blindness in both eyes.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	1,699	8.41	15.89	Mountain whites.....	753	10.34	18.21
Agricultural, foreign and native white.....	2,073	7.08	13.42	Indian, sparsely settled....	362	11.39	21.43
Agricultural, native white, South.....	4,517	10.52	20.37	Mexican, sparsely settled....	258	9.32	19.73
Agricultural, Negro, 45 per cent plus.....	1,697	9.41	17.04	Native white, Scotch origin.	658	12.13	25.62
Eastern manufacturing.....	1,540	6.90	11.62	Russian, 10 per cent plus....	309	8.13	13.74
Commuters.....	513	6.92	12.85	Scandinavian, 10 per cent....	1,164	7.41	13.65
Mining.....	720	7.52	13.23	Finns, 10 per cent.....	120	8.80	16.94
Sparsely settled, 3 or less per square mile.....	364	8.06	14.06	French Canadians, 10 per cent plus.....	690	7.47	10.92
Desert.....	129	10.67	15.95	German and Scandinavian, each 10 per cent plus.....	657	6.67	12.88
Maritime.....	196	9.74	14.22	German and Austrian, 20 per cent plus.....	700	7.04	13.78
Mountain.....	400	7.59	13.27	German and Austrian, 15 per cent plus.....	2,395	6.81	12.63

TABLE 136.—*Total defects of the eyes.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	8,098	40.10	75.76	Mountain whites.....	2,941	40.39	71.12
Agricultural, foreign and native white.....	10,808	36.90	70.00	Indian, sparsely settled....	1,421	44.72	84.14
Agricultural, native white, South.....	16,946	39.46	76.40	Mexican, sparsely settled....	866	31.28	66.21
Agricultural, Negro, 45 per cent plus.....	5,890	32.68	59.13	Native white, Scotch origin.	2,297	42.32	89.45
Eastern manufacturing.....	12,550	56.24	94.68	Russian, 10 per cent plus....	1,713	45.07	76.15
Commuters.....	3,502	47.23	87.73	Scandinavian, 10 per cent....	5,772	36.77	67.69
Mining.....	3,507	36.64	64.42	Finns, 10 per cent.....	504	36.97	71.17
Sparsely settled, 3 or less per square mile.....	1,611	35.66	62.22	French Canadians, 10 per cent plus.....	6,451	69.83	102.04
Desert.....	525	43.42	64.89	German and Scandinavian, each 10 per cent plus....	3,528	35.78	69.12
Maritime.....	943	46.84	68.40	German and Austrian, 20 per cent plus.....	3,723	37.47	73.28
Mountain.....	2,407	45.65	79.89	German and Austrian, 15 per cent plus.....	13,753	39.11	72.51

TABLE 137.—*Otitis media and perforated eardrum.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	1,501	7.43	14.04	Mountain whites.....	346	4.76	8.36
Agricultural, foreign and native white.....	1,966	6.71	12.73	Indian, sparsely settled....	268	8.43	15.87
Agricultural, native white, South.....	2,291	5.33	10.33	Mexican, sparsely settled....	155	5.59	11.85
Agricultural, Negro, 45 per cent plus.....	571	3.17	5.73	Native whites, Scotch origin.	350	6.45	13.63
Eastern manufacturing.....	2,669	11.96	20.14	Russian, 10 per cent plus....	423	11.13	18.81
Commuters.....	928	12.52	23.25	Scandinavian, 10 per cent....	1,190	7.58	13.95
Mining.....	802	8.38	14.73	Finns, 10 per cent.....	116	8.51	16.38
Sparsely settled, 3 or less per square mile.....	350	7.75	13.52	French Canadians, 10 per cent plus.....	1,239	13.41	19.60
Desert.....	123	10.17	15.20	German and Scandinavian, each 10 per cent plus....	630	6.39	12.34
Maritime.....	117	5.82	8.49	German and Austrian, 20 per cent plus.....	766	7.71	15.08
Mountain.....	413	7.83	13.71	German and Austrian, 15 per cent plus.....	3,044	8.66	16.05

TABLE 138.—*Deviation of nasal septum and hypertrophy of turbinates.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	43	0.21	0.40	Mountain whites.....	25	0.34	0.61
Agricultural foreign and native white.....	66	.22	.42	Indian, sparsely settled....	6	.19	.36
Agricultural, native white, South.....	100	.23	.45	Mexican, sparsely settled....	9	.32	.69
Agricultural, Negro, 45 per cent plus.....	42	.23	.42	Native white, Scotch origin.....	8	.15	.31
Eastern manufacturing.....	91	.41	.68	Russian, 10 per cent plus....	28	.73	1.25
Commuters.....	21	.28	.53	Scandinavian, 10 per cent....	33	.21	.39
Mining.....	45	.47	.82	Finns, 10 per cent.....	4	.29	.56
Sparsely settled, 3 or less per square mile.....	11	.24	.42	French Canadians, 10 per cent plus.....	55	.59	.87
Desert.....	3	.25	.37	German and Scandinavian, each 10 per cent plus.....	15	.15	.29
Maritime.....	2	.10	.15	German and Austrian, 20 per cent plus.....	16	.16	.32
Mountain.....	6	.11	.20	German and Austrian, 15 per cent plus.....	115	.32	.61

TABLE 139.—*Sinusitis.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	112	0.55	1.05	Mountain whites.....	75	1.03	1.81
Agricultural, foreign and native white.....	114	.39	.74	Indian, sparsely settled....	14	.44	.83
Agricultural, native white, South.....	215	.50	.97	Mexican, sparsely settled....	3	.11	.23
Agricultural, Negro, 45 per cent plus.....	98	.54	.98	Native white, Scotch origin.....	16	.29	.62
Eastern manufacturing.....	125	.56	.94	Russian, 10 per cent plus....	54	1.42	2.40
Commuters.....	27	.36	.68	Scandinavian, 10 per cent....	56	.36	.66
Mining.....	102	1.07	1.87	Finns, 10 per cent.....	9	.66	1.27
Sparsely settled, 3 or less per square mile.....	14	.31	.54	French Canadians, 10 per cent plus.....	42	.45	.66
Desert.....	3	.25	.37	German and Scandinavian, each 10 per cent plus.....	32	.32	.63
Maritime.....	26	1.29	1.89	German and Austrian, 20 per cent plus.....	34	.34	.67
Mountain.....	24	.46	.80	German and Austrian, 15 per cent plus.....	262	.75	1.38

TABLE 140.—*Tonsillitis, hypertrophic.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	4,613	22.84	43.15	Mountain whites.....	2,083	28.62	50.38
Agricultural, foreign and native white.....	5,904	20.15	38.25	Indian, sparsely settled....	1,007	31.68	59.63
Agricultural, native white, South.....	11,067	25.77	49.89	Mexican, sparsely settled....	461	16.65	35.24
Agricultural, Negro, 45 per cent plus.....	3,855	21.39	38.70	Native white, Scotch origin.....	1,457	26.84	56.75
Eastern manufacturing.....	5,464	24.49	41.22	Russian, 10 per cent plus....	1,444	37.99	64.19
Commuters.....	1,890	25.49	47.36	Scandinavian, 10 per cent....	2,534	16.14	29.71
Mining.....	3,212	33.58	59.01	Finns, 10 per cent.....	234	17.17	33.05
Sparsely settled, 3 or less per square mile.....	1,093	24.20	42.21	French Canadians, 10 per cent plus.....	1,853	20.06	29.32
Desert.....	377	31.19	46.61	German and Scandinavian, each 10 per cent plus.....	1,383	14.02	27.10
Maritime.....	484	24.04	35.11	German and Austrian, 20 per cent plus.....	1,349	13.58	26.55
Mountain.....	1,170	22.19	38.83	German and Austrian, 15 per cent plus.....	9,299	26.44	49.03

TABLE 141.—*Diseases and defects of the nose, throat, and ear.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	6,269	31.03	58.64	Mountain whites.....	2,529	34.75	61.16
Agricultural, foreign and native white.....	8,050	27.47	52.14	Indian, sparsely settled...	1,295	40.74	76.69
Agricultural, native white, South.....	13,673	31.83	61.64	Mexican, sparsely settled...	628	22.67	48.01
Agricultural, Negro, 45 per cent plus.....	4,566	25.33	45.83	Native white, Scotch origin...	1,831	33.73	71.31
Eastern manufacturing.....	8,349	37.42	62.98	Russian, 10 per cent plus...	1,949	51.27	86.65
Commuters.....	2,866	38.65	71.82	Scandinavian, 10 per cent...	3,813	24.29	44.71
Mining.....	4,161	43.50	76.43	Finns, 10 per cent.....	363	26.63	51.26
Sparsely settled, 3 or less per square mile.....	1,468	32.50	56.69	French Canadians, 10 per cent plus.....	3,189	34.51	50.45
Desert.....	506	41.86	62.55	German and Scandinavian, each 10 per cent plus.....	2,060	20.88	40.36
Maritime.....	629	31.25	45.64	German and Austrian, 20 per cent plus.....	2,165	21.79	42.62
Mountain.....	1,613	30.59	53.54	German and Austrian, 15 per cent plus.....	12,720	36.17	67.07

TABLE 142.—*Valvular diseases of the heart and endocarditis.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	6,037	29.90	56.46	Mountain whites.....	1,775	24.36	42.93
Agricultural, foreign and native white.....	10,005	34.15	64.82	Indian, sparsely settled...	613	19.27	36.29
Agricultural, native white, South.....	10,571	24.60	47.67	Mexican, sparsely settled...	726	26.20	55.51
Agricultural, Negro, 45 per cent plus.....	5,239	29.07	52.60	Native white, Scotch origin...	1,262	23.26	49.17
Eastern manufacturing.....	7,934	35.56	59.86	Russian, 10 per cent plus...	1,212	31.88	53.87
Commuters.....	2,627	35.42	65.82	Scandinavian, 10 per cent...	6,046	38.51	70.87
Mining.....	2,961	30.94	54.40	Finns, 10 per cent.....	480	35.21	67.78
Sparsely settled, 3 or less per square mile.....	1,715	37.96	66.23	French Canadian, 10 per cent plus.....	3,841	41.57	60.79
Desert.....	435	35.99	53.77	German and Scandinavian, each 10 per cent plus.....	2,978	30.20	58.35
Maritime.....	799	39.69	57.96	German and Austrian, 20 per cent plus.....	2,906	29.26	57.20
Mountain.....	1,856	35.20	61.59	German and Austrian, 15 per cent plus.....	10,544	29.98	55.58

TABLE 143.—*Cardiac hypertrophy and dilatation.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	837	4.14	7.83	Mountain whites.....	330	4.53	7.98
Agricultural, foreign and native white.....	1,398	4.77	9.06	Indian, sparsely settled...	88	2.77	5.22
Agricultural, native white, South.....	1,379	3.21	6.22	Mexican, sparsely settled...	54	1.95	4.12
Agricultural, Negro, 45 per cent plus.....	881	4.88	8.84	Native white, Scotch origin...	126	2.32	4.91
Eastern manufacturing.....	1,168	5.24	8.81	Russian, 10 per cent plus...	227	5.97	10.09
Commuters.....	299	4.03	7.50	Scandinavian, 10 per cent...	866	5.52	10.16
Mining.....	441	4.60	8.11	Finns, 10 per cent.....	74	5.43	10.45
Sparsely settled, 3 or less per square mile.....	223	4.94	8.61	French Canadians, 10 per cent plus.....	615	6.66	9.73
Desert.....	55	4.55	6.80	German and Scandinavian, each 10 per cent plus.....	486	4.93	9.52
Maritime.....	119	5.91	8.64	German and Austrian, 20 per cent plus.....	418	4.20	8.23
Mountain.....	264	5.00	8.76	German and Austrian, 15 per cent plus.....	1,697	4.82	8.94



TABLE 144.—*Myocarditis and myocardial insufficiency.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	154	0.76	1.44	Mountain whites.....	43	0.58	1.14
Agricultural, foreign and native white.....	258	.88	1.67	Indian, sparsely settled...	7	.22	.42
Agricultural, native white, South.....	194	.45	.88	Mexican, sparsely settled...	9	.33	.69
Agricultural, Negro, 45 per cent plus.....	104	.57	1.04	Native white, Scotch origin...	25	.47	.98
Eastern manufacturing.....	378	1.69	2.85	Russian, 10 per cent plus...	17	.45	.75
Commuters.....	69	.93	1.73	Scandinavian, 10 per cent...	138	.88	1.61
Mining.....	76	.79	1.39	Finns, 10 per cent.....	13	.96	1.84
Sparsely settled, 3 or less per square mile.....	27	.60	1.04	French Canadians, 10 per cent plus.....	404	4.38	6.40
Desert.....	4	.33	.49	German and Scandinavian, each 10 per cent plus.....	78	.79	1.53
Maritime.....	51	2.53	3.70	German and Austrian, 20 per cent plus.....	105	1.06	2.07
Mountain.....	34	.64	1.13	German and Austrian, 15 per cent plus.....	275	.78	1.45

TABLE 145.—*Total organic diseases of the heart.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	7,028	34.80	65.74	Mountain whites.....	2,148	29.51	51.95
Agricultural, foreign and native white.....	11,661	39.80	75.54	Indian, sparsely settled...	708	22.27	41.92
Agricultural, native white, South.....	12,144	28.27	54.75	Mexican, sparsely settled...	789	28.49	60.32
Agricultural, Negro, 45 per cent plus.....	6,224	34.53	62.49	Native white, Scotch origin...	1,413	26.03	55.04
Eastern manufacturing.....	9,480	42.49	71.52	Russian, 10 per cent plus...	1,456	38.30	64.73
Commuters.....	2,925	40.40	75.04	Scandinavian, 10 per cent...	7,050	44.87	82.66
Mining.....	3,478	36.36	63.90	Finns, 10 per cent.....	567	41.59	80.08
Sparsely settled, 3 or less per square mile.....	1,965	43.51	75.89	French Canadians, 10 per cent plus.....	4,860	52.61	76.90
Desert.....	494	40.87	61.07	German and Scandinavian, each 10 per cent plus...	3,542	35.91	69.40
Maritime.....	969	48.13	70.30	German and Austrian, 20 per cent plus.....	3,429	34.53	67.49
Mountain.....	2,154	40.85	71.48	German and Austrian, 15 per cent plus.....	12,516	35.59	65.99

TABLE 146.—*Arteriosclerosis and hypertension.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	69	0.34	0.65	Mountain whites.....	25	0.34	0.60
Agricultural, foreign and native white.....	105	.36	.68	Indian, sparsely settled...	12	.38	.71
Agricultural, native white, South.....	116	.27	.52	Mexican, sparsely settled...	4	.14	.31
Agricultural, Negro, 45 per cent plus.....	140	.78	1.41	Native white, Scotch origin...	8	.15	.31
Eastern manufacturing.....	83	.37	.63	Russian, 10 per cent plus...	9	.24	.40
Commuters.....	15	.20	.38	Scandinavian, 10 per cent...	51	.32	.60
Mining.....	28	.29	.51	Finns, 10 per cent.....	2	.15	.28
Sparsely settled, 3 or less per square mile.....	7	.15	.27	French Canadians, 10 per cent plus.....	40	.43	.63
Desert.....	2	.17	.25	German and Scandinavian, each, 10 per cent plus.....	39	.40	.76
Maritime.....	13	.89	1.31	German and Austrian, 20 per cent plus.....	26	.26	.51
Mountain.....	12	.23	.40	German and Austrian, 15 per cent plus.....	117	.33	.62

TABLE 147.—*Cardiac arrhythmias; murmurs not organic; functional disorders.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	340	1.69	3.18	Mountain whites.....	202	2.78	4.88
Agricultural, foreign and native white.....	496	1.69	3.21	Indian, sparsely settled....	75	2.36	4.44
Agricultural, native white, South.....	798	1.86	3.59	Mexican, sparsely settled....	13	.47	1.00
Agricultural, Negro, 45 per cent plus.....	349	1.93	3.50	Native white, Scotch origin..	38	.70	1.49
Eastern manufacturing.....	518	2.32	3.90	Russian, 10 per cent plus....	93	2.45	4.13
Commuters.....	149	2.01	3.73	Scandinavian, 10 per cent...	287	1.83	3.37
Mining.....	194	2.02	3.57	Finns, 10 per cent.....	81	5.94	11.44
Sparsely settled, 3 or less per square mile.....	59	1.81	2.28	French Canadians, 10 per cent plus.....	304	3.29	4.80
Desert.....	16	1.33	1.98	German and Scandinavian, each 10 per cent plus.....	148	1.49	2.91
Maritime.....	64	3.18	4.64	German and Austrian, 20 per cent plus.....	133	1.33	2.62
Mountain.....	123	2.34	4.08	German and Austrian, 15 per cent plus.....	654	1.86	3.44

TABLE 148.—*Tachycardia.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	976	4.83	9.13	Mountain whites.....	321	4.41	7.76
Agricultural, foreign and native white.....	1,484	5.06	9.61	Indian, sparsely settled....	118	3.71	6.99
Agricultural, native white, South.....	1,679	3.91	7.57	Mexican, sparsely settled....	59	2.13	4.51
Agricultural, Negro, 45 per cent plus.....	858	4.76	8.61	Native white, Scotch origin..	160	2.95	6.23
Eastern manufacturing.....	775	3.47	5.85	Russian, 10 per cent plus....	204	5.37	9.07
Commuters.....	238	3.21	5.96	Scandinavian, 10 per cent...	888	5.66	10.41
Mining.....	416	4.35	7.64	Finns, 10 per cent.....	83	6.09	11.72
Sparsely settled, 3 or less per square mile.....	196	4.34	7.57	French Canadians, 10 per cent plus.....	362	3.92	5.73
Desert.....	35	2.90	4.33	German and Scandinavian, each 10 per cent plus....	610	6.18	11.95
Maritime.....	124	6.16	9.00	German and Austrian, 20 per cent plus.....	427	4.30	8.40
Mountain.....	205	3.89	6.80	German and Austrian, 15 per cent plus.....	1,635	4.65	8.62

TABLE 149.—*Hemorrhoids.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	214	1.06	2.00	Mountain whites.....	105	1.44	2.54
Agricultural, foreign and native white.....	261	.89	1.69	Indian, sparsely settled....	46	1.45	2.72
Agricultural, native white, South.....	680	1.58	3.07	Mexican, sparsely settled....	41	1.48	3.13
Agricultural, Negro, 45 per cent plus.....	272	1.51	2.73	Native white, Scotch origin..	48	.88	1.87
Eastern manufacturing.....	288	1.29	2.17	Russian, 10 per cent plus....	43	1.13	1.91
Commuters.....	99	1.34	2.48	Scandinavian, 10 per cent...	108	.69	1.27
Mining.....	122	1.28	2.24	Finns, 10 per cent.....	14	1.03	1.98
Sparsely settled, 3 or less per square mile.....	36	.80	1.39	French Canadians, 10 per cent plus.....	149	1.61	2.36
Desert.....	21	1.74	2.60	German and Scandinavian, each 10 per cent plus....	67	.68	1.31
Maritime.....	31	1.54	2.25	German and Austrian, 20 per cent plus.....	118	1.19	2.32
Mountain.....	64	1.21	2.12	German and Austrian, 15 per cent plus.....	361	1.03	..90

TABLE 150.—*Varicocoe.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	677	3.35	6.33	Mountain whites.....	273	3.75	6.60
Agricultural, foreign and native white.....	1,024	3.49	6.63	Indian, sparsely settled....	106	3.33	6.28
Agricultural, native white, South.....	1,346	3.13	6.07	Mexican, sparsely settled....	85	3.07	6.50
Agricultural, Negro, 45 per cent plus.....	540	3.00	5.42	Native white, Scotch origin..	172	3.17	6.70
Eastern manufacturing.....	822	3.68	6.20	Russian, 10 per cent plus....	105	2.76	4.67
Commuters.....	239	3.22	5.99	Scandinavian, 10 per cent..	638	4.06	7.48
Mining.....	258	2.70	4.74	Finns, 10 per cent.....	39	2.86	5.51
Sparsely settled, 3 or less per square mile.....	119	2.63	4.60	French Canadians, 10 per cent plus.....	378	4.09	5.98
Desert.....	48	3.97	5.93	German and Scandinavian, each 10 per cent plus.....	459	4.65	8.99
Maritime.....	64	3.18	4.64	German and Austrian, 20 per cent plus.....	385	3.88	7.58
Mountain.....	160	3.03	5.31	German and Austrian, 15 per cent plus.....	1,339	3.81	7.06

TABLE 151.—*Variocose veins.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	746	3.69	6.98	Mountain whites.....	373	5.12	9.02
Agricultural, foreign and native white.....	1,248	4.26	8.08	Indian, sparsely settled....	118	3.71	6.99
Agricultural, native white, South.....	1,582	3.68	7.13	Mexican, sparsely settled....	66	2.38	5.05
Agricultural, Negro, 45 per cent plus.....	656	3.64	6.59	Native white, Scotch origin..	181	3.33	7.05
Eastern manufacturing.....	1,075	4.82	8.11	Russian, 10 per cent plus....	170	4.47	7.56
Commuters.....	278	3.75	6.97	Scandinavian, 10 per cent..	887	5.65	10.40
Mining.....	427	4.46	7.85	Finns, 10 per cent.....	95	6.97	13.42
Sparsely settled, 3 or less per square mile.....	192	4.25	7.42	French Canadians, 10 per cent plus.....	624	6.76	9.87
Desert.....	45	3.72	5.56	Germans and Scandinavians, each 10 per cent plus.....	518	5.25	10.15
Maritime.....	79	3.92	5.73	Germans and Austrians, 20 per cent plus.....	437	4.40	8.60
Mountain.....	256	4.85	8.50	Germans and Austrians, 15 per cent plus.....	1,504	4.28	7.93

TABLE 152.—*Defects and diseases of the veins.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	1,637	8.10	15.31	Mountain whites.....	751	10.31	18.16
Agricultural, foreign and native white.....	2,533	8.64	16.40	Indian, sparsely settled....	270	8.49	15.99
Agricultural, native white, South.....	3,608	8.39	16.27	Mexican, sparsely settled....	192	6.93	14.68
Agricultural, Negro, 45 per cent plus.....	1,468	8.15	14.74	Native white, Scotch origin..	401	7.38	15.62
Eastern manufacturing.....	2,185	9.79	16.48	Russian, 10 per cent plus....	318	8.36	14.14
Commuters.....	616	8.31	15.44	Scandinavian, 10 per cent..	1,633	10.40	19.15
Mining.....	807	8.44	14.83	Finns, 10 per cent.....	148	9.86	20.91
Sparsely settled, 3 or less per square mile.....	347	7.68	13.41	French Canadians, 10 per cent plus.....	1,151	12.46	18.21
Desert.....	114	9.43	14.09	Germans and Scandinavians, each 10 per cent plus.....	1,044	10.58	20.45
Maritime.....	174	8.64	12.62	Germans and Austrians, 20 per cent plus.....	940	9.47	18.50
Mountain.....	480	9.09	15.93	Germans and Austrians, 15 per cent plus.....	3,204	9.12	16.83



TABLE 153.—*Bronchitis.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus..	159	0.79	1.49	Mountain whites.....	58	0.80	1.40
Agricultural, foreign and native white.....	241	.82	1.56	Indian, sparsely settled....	11	.35	.65
Agricultural, native white, South.....	241	.56	1.09	Mexican, sparsely settled....	9	.32	.69
Agricultural, Negro, 45 per cent plus.....	125	.69	1.25	Native white, Scotch origin..	22	.41	.86
Eastern manufacturing.....	199	.89	1.50	Russian, 10 per cent plus....	39	1.03	1.73
Commuters.....	51	.69	1.28	Scandinavian, 10 per cent..	51	.32	.60
Mining.....	64	.67	1.18	Finns, 10 per cent.....	7	.51	.99
Sparsely settled, 3 or less per square mile.....	25	.55	.97	French-Canadians, 10 per cent plus.....	134	1.45	2.12
Desert.....	3	.25	.37	German and Scandinavian, each 10 per cent plus.....	31	.31	.61
Maritime.....	17	.84	1.23	German and Austrian, 20 per cent plus.....	69	.69	1.36
Mountain.....	26	.49	.86	German and Austrian, 15 per cent plus.....	235	.67	1.24

TABLE 154.—*Asthma.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	471	2.33	4.41	Mountain whites.....	161	2.21	3.89
Agricultural, foreign and native white.....	807	2.75	5.23	Indian, sparsely settled....	57	1.79	3.38
Agricultural, native white, South.....	998	2.32	4.50	Mexican, sparsely settled....	76	2.74	5.81
Agricultural, Negro, 45 per cent plus.....	588	3.26	5.90	Native white, Scotch origin..	106	1.95	4.13
Eastern manufacturing.....	600	2.69	4.53	Russian, 10 per cent plus....	113	2.97	5.02
Commuters.....	112	1.51	2.81	Scandinavian, 10 per cent..	377	2.40	4.42
Mining.....	213	2.23	3.91	Finns, 10 per cent.....	21	1.54	2.97
Sparsely settled, 3 or less per square mile.....	123	2.83	4.94	French-Canadians, 10 per cent plus.....	369	3.99	5.84
Desert.....	35	2.90	4.33	German and Scandinavian, each 10 per cent plus....	252	2.55	4.94
Maritime.....	74	3.68	5.37	German and Austrian, 20 per cent plus.....	214	2.16	4.21
Mountain.....	136	2.58	4.51	German and Austrian, 15 per cent plus.....	721	2.05	3.80

TABLE 155.—*Defective and deficient teeth; dental caries.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus..	1,822	9.02	17.04	Mountain whites.....	867	11.91	20.97
Agricultural, foreign and native white.....	4,396	15.00	28.48	Indian, sparsely settled....	191	6.00	11.31
Agricultural, native white, South.....	3,398	7.91	15.32	Mexican, sparsely settled....	100	3.61	7.64
Agricultural, Negro, 45 per cent plus.....	2,053	11.39	20.61	Native white, Scotch origin..	468	8.62	18.23
Eastern manufacturing.....	5,842	26.18	44.07	Russian, 10 per cent plus....	509	13.40	22.63
Commuters.....	1,656	22.34	41.50	Scandinavian, 10 per cent..	2,249	14.32	26.37
Mining.....	1,102	11.52	20.24	Finns, 10 per cent.....	286	20.98	40.40
Sparsely settled, 3 or less per square mile.....	550	12.17	21.24	French Canadians, 10 per cent plus.....	3,696	40.01	58.49
Desert.....	100	8.27	12.36	German and Scandinavian, each 10 per cent plus....	1,325	13.43	25.96
Maritime.....	446	22.15	32.36	German and Austrian, 20 per cent plus.....	1,002	10.09	19.72
Mountain.....	1,041	19.74	34.54	German and Austrian, 15 per cent plus.....	4,558	12.97	24.03

TABLE 156.—*Hernia.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	4,097	20.29	38.32	Mountain whites.....	1,450	19.92	35.07
Agricultural, foreign and native white.....	6,572	22.43	42.57	Indian, sparsely settled....	693	21.80	41.04
Agricultural, native white, South.....	8,823	20.54	39.78	Mexican, sparsely settled....	536	19.35	40.98
Agricultural, Negro, 45 per cent plus.....	4,322	23.98	43.39	Native white, Scotch origin..	1,069	19.70	41.64
Eastern manufacturing.....	4,227	18.94	31.89	Russian, 10 per cent plus....	823	21.65	36.59
Commuters.....	1,554	20.96	38.94	Scandinavian, 10 per cent....	3,527	22.47	41.36
Mining.....	2,158	22.56	39.65	Finns, 10 per cent.....	338	24.79	47.74
Sparsely settled, 3 or less per square mile.....	1,043	23.09	40.28	French Canadians, 10 per cent plus.....	1,739	18.83	27.52
Desert.....	295	24.40	36.47	German and Scandinavian, each 10 per cent plus....	2,215	22.46	43.40
Maritime.....	429	21.31	31.12	German and Austrian, 20 per cent plus.....	2,001	20.15	39.38
Mountain.....	1,142	21.66	37.90	German and Austrian, 15 per cent plus.....	7,613	21.65	40.14

TABLE 157.—*Inguinal rings, enlargement of.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	2,991	14.81	27.98	Mountain whites.....	1,444	19.84	34.92
Agricultural, foreign and native white.....	5,427	18.52	35.16	Indian, sparsely settled....	428	13.46	25.34
Agricultural, native white, South.....	5,748	13.38	25.91	Mexican, sparsely settled....	564	20.36	43.12
Agricultural, Negro, 45 per cent plus.....	1,927	10.69	19.35	Native white, Scotch origin..	180	3.32	7.01
Eastern manufacturing.....	5,669	25.41	42.77	Russian, 10 per cent plus....	962	25.30	42.77
Commuters.....	2,102	28.35	52.67	Scandinavian, 10 per cent..	2,639	16.81	30.94
Mining.....	2,280	23.83	41.89	Finns, 10 per cent.....	161	11.81	22.74
Sparsely settled, 3 or less per square mile.....	1,529	33.85	59.05	French Canadians, 10 per cent plus.....	2,232	24.16	35.32
Desert.....	373	30.86	46.11	German and Scandinavian, each 10 per cent plus....	1,782	18.07	34.92
Maritime.....	526	26.13	38.16	German and Austrian, 20 per cent plus.....	1,431	14.41	28.16
Mountain.....	1,069	20.27	35.47	German and Austrian, 15 per cent plus.....	7,745	22.02	40.83

TABLE 158.—*Hernia; enlargement of inguinal rings.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	7,088	35.10	66.30	Mountain whites.....	2,894	39.76	69.99
Agricultural, foreign and native white.....	11,999	40.95	77.73	Indian, sparsely settled....	1,121	35.26	66.38
Agricultural, native white, South.....	14,571	33.92	65.69	Mexican, sparsely settled....	1,100	39.71	84.10
Agricultural, Negro, 45 per cent plus.....	6,249	34.67	62.74	Native white, Scotch origin..	1,249	23.02	48.65
Eastern manufacturing.....	9,896	44.35	74.66	Russian, 10 per cent plus....	1,785	46.95	79.36
Commuters.....	3,656	49.31	91.61	Scandinavian, 10 per cent..	6,166	39.28	72.30
Mining.....	4,438	46.39	81.54	Finns, 10 per cent.....	499	36.60	70.48
Sparsely settled, 3 or less per square mile.....	2,572	66.94	99.33	French Canadians, 10 per cent plus.....	3,971	42.99	62.84
Desert.....	668	55.26	82.58	German and Scandinavian, each 10 per cent plus....	3,997	40.53	78.32
Maritime.....	955	47.44	69.28	German and Austrian, 20 per cent plus.....	3,432	34.56	67.54
Mountain.....	2,211	41.93	73.37	German and Austrian, 15 per cent plus.....	15,358	43.67	80.97

TABLE 159.—*Nephritis.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus....	160	0.79	1.50	Mountain whites.....	41	0.55	0.99
Agricultural, foreign and native white.....	212	.72	1.37	Indian, sparsely settled....	9	.28	.53
Agricultural, native white, South.....	253	.59	1.14	Mexican, sparsely settled....	21	.76	1.61
Agricultural, Negro, 45 per cent plus.....	98	.54	.98	Native white, Scotch origin..	39	.72	1.52
Eastern manufacturing.....	261	1.17	1.97	Russian, 10 per cent plus....	33	.87	1.47
Commuters.....	76	1.03	1.90	Scandinavian, 10 per cent....	142	.90	1.67
Mining.....	71	.74	1.30	Finn, 10 per cent.....	12	.88	1.69
Sparsely settled, 3 or less per square mile.....	33	.73	1.27	French Canadians, 10 per cent plus.....	106	1.15	1.68
Desert.....	7	.58	.87	German and Scandinavian, each 10 per cent plus.....	84	.85	1.65
Maritime.....	20	.99	1.45	German and Austrian, 20 per cent plus.....	92	.93	1.81
Mountain.....	46	.87	1.53	German and Austrian, 15 per cent plus.....	307	.87	1.62

TABLE 160.—*Hydrocele.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus....	222	1.10	2.08	Mountain whites.....	92	1.26	2.23
Agricultural, foreign and native white.....	338	1.15	2.19	Indian, sparsely settled....	28	.88	1.66
Agricultural, native white, South.....	453	1.05	2.04	Mexican, sparsely settled....	39	1.41	2.98
Agricultural, Negro, 45 per cent plus.....	259	1.44	2.60	Native white, Scotch origin..	46	.85	1.79
Eastern manufacturing.....	273	1.22	2.06	Russian, 10 per cent plus....	47	1.24	2.09
Commuters.....	97	1.31	2.43	Scandinavian, 10 per cent....	205	1.31	2.40
Mining.....	113	1.18	2.08	Finn, 10 per cent.....	13	.95	1.84
Sparsely settled, 3 or less per square mile.....	51	1.13	1.97	French Canadians, 10 per cent plus.....	129	1.40	2.04
Desert.....	24	1.99	2.97	German and Scandinavian, each 10 per cent plus.....	144	1.46	2.82
Maritime.....	24	1.19	1.74	German and Austrian, 20 per cent plus.....	123	1.24	2.42
Mountain.....	53	1.01	1.76	German and Austrian, 15 per cent plus.....	394	1.12	2.08

TABLE 161.—*Fractures, faulty union.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, north, 73 per cent plus....	831	4.11	7.78	Mountain whites.....	411	5.65	9.94
Agricultural, foreign and native white.....	1,313	4.48	8.51	Indian, sparsely settled....	159	5.02	9.42
Agricultural, native white, South.....	2,060	4.79	9.29	Mexican, sparsely settled....	123	4.44	9.41
Agricultural, Negro, 45 per cent plus.....	948	5.25	9.51	Native white, Scotch origin..	178	3.27	6.93
Eastern manufacturing.....	911	4.08	6.87	Russian, 10 per cent plus....	209	5.50	9.28
Commuters.....	225	3.03	5.64	Scandinavian, 10 per cent....	694	4.42	8.14
Mining.....	504	5.26	9.26	Finn, 10 per cent.....	82	6.01	11.58
Sparsely settled, 3 or less per square mile.....	262	5.80	10.12	French-Canadians, 10 per cent plus.....	414	4.49	6.55
Desert.....	63	5.21	7.78	German and Scandinavian, each 10 per cent plus.....	367	3.72	7.20
Maritime.....	98	4.87	7.12	German and Austrian, 20 per cent plus.....	379	3.81	7.46
Mountain.....	277	5.26	9.20	German and Austrian, 15 per cent plus.....	1,410	4.01	7.42



TABLE 162.—*Upper extremity, loss of whole or part of.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	471	2.33	4.41	Mountain whites.....	169	2.32	4.09
Agricultural, foreign and native white.....	620	2.12	4.02	Indian, sparsely settled....	83	2.61	4.91
Agricultural, native white, South.....	1,026	2.39	4.63	Mexican, sparsely settled....	46	1.66	3.52
Agricultural, Negro, 45 per cent plus.....	425	2.36	4.27	Native white, Scotch origin..	121	2.23	4.71
Eastern manufacturing.....	406	1.82	3.06	Russian, 10 per cent plus....	103	2.71	4.58
Commuters.....	124	1.67	3.11	Scandinavian, 10 per cent....	325	2.07	3.81
Mining.....	192	2.01	3.53	Finns, 10 per cent.....	25	1.83	3.53
Sparsely settled, 3 or less per square mile.....	69	1.53	2.66	French-Canadians, 10 per cent plus.....	157	1.70	2.48
Desert.....	25	2.07	3.09	German and Scandinavian, each 10 per cent plus.....	209	2.12	4.10
Maritime.....	43	2.14	3.12	German and Austrian, 20 per cent plus.....	222	2.24	4.37
Mountain.....	89	1.69	2.95	German and Austrian, 15 per cent plus.....	767	2.18	4.04

TABLE 163.—*Lower extremity, loss of whole or part of.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	839	4.15	7.85	Mountain whites.....	241	3.31	5.83
Agricultural, foreign and native white.....	962	3.28	6.23	Indian, sparsely settled....	141	4.44	8.35
Agricultural, native white, South.....	1,553	3.62	7.00	Mexican, sparsely settled....	67	2.42	5.12
Agricultural, Negro, 45 per cent plus.....	533	2.96	5.35	Native white, Scotch origin..	209	3.85	8.14
Eastern manufacturing.....	828	3.71	6.25	Russian, 10 per cent plus....	165	4.34	7.34
Commuters.....	202	2.72	5.06	Scandinavian, 10 per cent....	456	2.90	5.35
Mining.....	340	3.55	6.25	Finns, 10 per cent.....	58	4.25	8.19
Sparsely settled, 3 or less per square mile.....	90	1.99	3.48	French-Canadians, 10 per cent plus.....	262	2.84	4.15
Desert.....	30	2.48	3.71	German and Scandinavian, each 10 per cent plus.....	248	2.51	4.86
Maritime.....	46	2.28	3.34	German and Austrian, 20 per cent plus.....	379	3.82	7.46
Mountain.....	120	2.28	3.98	German and Austrian, 15 per cent plus.....	1,377	3.92	7.26

TABLE 164.—*Arthritis.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	407	2.02	3.81	Mountain whites.....	210	2.89	5.08
Agricultural, foreign and native white.....	623	2.13	4.04	Indian, sparsely settled....	80	2.52	4.74
Agricultural, native white, South.....	1,135	2.64	5.12	Mexican, sparsely settled....	53	1.91	4.05
Agricultural, Negro, 45 per cent plus.....	674	3.74	6.77	Native white, Scotch origin..	86	1.58	3.35
Eastern manufacturing.....	355	1.59	2.68	Russian, 10 per cent plus....	75	1.97	3.33
Commuters.....	100	1.35	2.51	Scandinavian, 10 per cent....	375	2.39	4.40
Mining.....	256	2.68	4.70	Finns, 10 per cent.....	32	2.35	4.52
Sparsely settled, 3 or less per square mile.....	116	2.57	4.48	French-Canadians, 10 per cent plus.....	204	2.21	3.23
Desert.....	29	2.40	3.59	German and Scandinavian, each 10 per cent plus.....	237	2.40	4.64
Maritime.....	78	3.87	5.66	German and Austrian, 20 per cent plus.....	195	1.96	3.84
Mountain.....	101	1.92	3.35	German and Austrian, 15 per cent plus.....	675	1.92	3.56

TABLE 165.—*Ankylosis of joint.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	1,289	6.38	12.06	Mountain whites.....	589	8.10	14.24
Agricultural, foreign and native white.....	1,930	6.59	12.50	Indian, sparsely settled....	292	9.18	17.29
Agricultural, native white, South.....	3,227	7.52	14.55	Me ican, sparsely settled....	129	4.66	9.86
Agricultural, Negro, 45 per cent plus.....	1,410	7.82	14.16	Native white, Scotch origin.	291	5.36	11.34
Eastern manufacturing.....	1,364	6.12	10.29	Russian, 10 per cent plus....	289	7.60	12.85
Commuters.....	392	5.29	9.82	Scandinavian, 10 per cent..	1,272	8.10	14.91
Mining.....	707	7.39	12.99	Finns, 10 per cent.....	115	8.44	16.24
Sparsely settled, 3 or less per square mile.....	367	8.13	14.18	French Canadians, 10 per cent plus.....	703	7.61	11.12
Desert.....	91	7.53	11.25	German and Scandinavian, each 10 per cent plus.....	749	7.60	14.68
Maritime.....	156	7.75	11.32	German and Austrian, 20 per cent plus.....	637	6.41	12.53
Mountain.....	379	7.18	12.57	German and Austrian, 15 per cent plus.....	2,349	6.68	12.39

TABLE 166.—*Hallux valgus and hammertoe.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	1,169	5.79	10.94	Mountain whites.....	578	7.95	13.97
Agricultural, foreign and native white.....	1,619	5.52	10.49	Indian, sparsely settled....	96	3.02	5.68
Agricultural, native white, South.....	2,282	5.31	10.20	Mexican, sparsely settled....	75	2.70	5.74
Agricultural, Negro, 45 per cent plus.....	1,197	6.64	12.02	Native white, Scotch origin.	147	2.71	5.73
Eastern manufacturing.....	1,727	7.74	13.03	Russian, 10 per cent plus....	381	10.02	16.94
Commuters.....	423	5.70	10.60	Scandinavian, 10 per cent..	867	5.53	10.16
Mining.....	803	8.39	14.75	Finns, 10 per cent.....	88	6.45	12.43
Sparsely settled, 3 or less per square mile.....	360	7.97	13.90	French Canadians, 10 per cent plus.....	852	9.23	13.48
Desert.....	97	8.02	11.99	German and Scandinavian, each 10 per cent plus.....	495	5.02	9.70
Maritime.....	358	17.78	25.98	German and Austrian, 20 per cent plus.....	507	5.11	9.98
Mountain.....	403	7.65	13.37	German and Austrian, 15 per cent plus.....	2,459	6.99	12.96

TABLE 167.—*Pcs planus.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	19,284	95.49	180.37	Mountain whites.....	5,100	70.07	123.35
Agricultural, foreign and native white.....	30,972	105.70	200.64	Indian, sparsely settled....	2,846	89.53	168.52
Agricultural, native white, South.....	34,046	79.27	153.49	Mexican, sparsely settled....	2,494	90.05	190.66
Agricultural, Negro, 45 per cent plus.....	13,477	74.78	135.31	Native white, Scotch origin.	3,230	59.51	125.81
Eastern manufacturing.....	22,467	100.69	169.50	Russian, 10 per cent plus....	4,254	111.90	189.12
Commuters.....	8,074	108.90	202.31	Scandinavian, 10 per cent..	20,165	128.46	236.45
Mining.....	11,456	119.75	210.48	Finns, 10 per cent.....	1,427	104.68	201.55
Sparsely settled, 3 or less per square mile.....	6,614	146.43	255.44	French Canadians, 10 per cent plus.....	8,359	90.49	132.27
Desert.....	1,584	131.04	195.82	German and Scandinavian, each 10 per cent plus.....	11,642	118.03	228.11
Maritime.....	2,272	112.85	164.83	German and Austrian, 20 per cent plus.....	12,351	124.38	243.08
Mountain.....	6,178	117.16	205.02	German and Austrian, 15 per cent plus.....	39,874	113.39	210.22

TABLE 168.—*Pronated foot.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	1,284	6.36	12.01	Mountain whites.....	656	9.01	15.87
Agricultural, foreign and native white.....	1,478	5.04	9.57	Indian, sparsely settled....	86	2.71	5.09
Agricultural, native white, South.....	1,914	4.46	8.63	Mexican, sparsely settled....	20	.72	1.53
Agricultural, Negro, 45 per cent plus.....	1,072	5.95	10.76	Native white, Scotch origin.....	134	2.47	5.22
Eastern manufacturing.....	2,576	11.54	19.43	Russian, 10 per cent plus.....	506	13.31	22.49
Commuters.....	394	5.31	9.87	Scandinavian, 10 per cent.....	190	1.21	2.23
Mining.....	796	8.32	14.62	Finns, 10 per cent.....	20	1.47	2.82
Sparsely settled, 3 or less per square mile.....	57	1.26	2.20	French Canadians, 10 per cent plus.....	1,548	16.76	24.50
Desert.....	24	1.99	2.97	German and Scandinavian, each 10 per cent plus.....	112	1.14	2.19
Maritime.....	271	13.46	19.66	German and Austrian, 20 per cent plus.....	338	3.40	6.65
Mountain.....	232	4.40	7.70	German and Austrian, 15 per cent plus.....	3,013	8.57	15.88

TABLE 169.—*Foot deformity (cause or type not specified).*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	615	3.05	5.75	Mountain whites.....	280	3.85	6.73
Agricultural, foreign and native white.....	915	3.12	5.93	Indian, sparsely settled....	95	2.99	5.60
Agricultural, native white, South.....	1,335	3.11	6.02	Mexican, sparsely settled....	51	1.84	3.95
Agricultural, Negro, 45 per cent plus.....	533	2.96	5.35	Native white, Scotch origin.....	158	2.91	6.15
Eastern manufacturing.....	601	2.69	4.53	Russian, 10 per cent plus.....	100	2.63	4.45
Commuters.....	204	2.75	5.11	Scandinavian, 10 per cent.....	472	3.01	5.53
Mining.....	279	2.92	5.13	Finns, 10 per cent.....	43	3.15	6.07
Sparsely settled, 3 or less per square mile.....	152	3.37	5.87	French Canadians, 10 per cent plus.....	281	3.04	4.45
Desert.....	42	3.47	5.19	German and Scandinavian, each 10 per cent plus.....	256	2.60	5.02
Maritime.....	55	2.73	3.99	German and Austrian, 20 per cent plus.....	254	2.56	5.00
Mountain.....	164	3.11	5.44	German and Austrian, 15 per cent plus.....	945	2.69	4.98

TABLE 170.—*Metatarsalgia.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	626	3.10	5.86	Mountain whites.....	232	3.19	5.61
Agricultural, foreign and native white.....	619	2.11	4.01	Indian, sparsely settled....	14	.44	.83
Agricultural, native white, South.....	580	1.35	2.61	Mexican, sparsely settled....	8	.29	.61
Agricultural, Negro, 45 per cent plus.....	229	1.27	2.30	Native white, Scotch origin.....	10	.18	.39
Eastern manufacturing.....	677	3.03	5.11	Russian, 10 per cent plus.....	275	7.23	12.23
Commuters.....	170	2.29	4.26	Scandinavian, 10 per cent.....	226	1.44	2.65
Mining.....	399	4.17	7.33	Finns, 10 per cent.....	22	1.61	3.11
Sparsely settled, 3 or less per square mile.....	72	1.59	2.78	French Canadians, 10 per cent plus.....	307	3.32	4.86
Desert.....	9	.74	1.11	German and Scandinavian, each 10 per cent plus.....	48	.49	.94
Maritime.....	84	4.17	6.09	German and Austrian, 20 per cent plus.....	120	1.21	2.36
Mountain.....	89	1.69	2.95	German and Austrian, 15 per cent plus.....	1,041	2.96	5.49



TABLE 171.—*Total defects and deformities of the feet.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	22,978	113.79	214.93	Mountain whites.....	6,846	94.07	165.57
Agricultural, foreign and native white.....	35,603	121.49	230.64	Indian, sparsely settled....	3,137	98.69	185.75
Agricultural, native white, South.....	40,157	93.50	181.04	Mexican, sparsely settled....	2,648	95.60	202.44
Agricultural, Negro, 45 per cent plus.....	16,508	91.60	165.74	Native white, Scotch origin.	3,679	67.78	143.30
Eastern manufacturing.....	28,048	125.69	211.60	Russian, 10 per cent plus....	5,516	142.46	245.23
Commuters.....	9,265	124.95	232.15	Scandinavian, 10 per cent....	21,920	139.65	257.02
Mining.....	13,733	143.55	262.31	Finns, 10 per cent.....	1,600	117.36	225.98
Sparsely settled, 3 or less per square mile.....	7,255	160.62	280.19	French Canadians, 10 per cent plus.....	11,347	122.84	179.56
Desert.....	1,756	145.26	217.08	German and Scandinavian, each 10 per cent plus.....	12,553	127.28	245.96
Maritime.....	3,040	150.99	220.55	German and Austrian, 20 per cent plus.....	13,570	136.66	267.07
Mountain.....	7,066	134.01	234.48	German and Austrian, 15 per cent plus.....	47,332	134.60	249.53

TABLE 172.—*Hand, deformity of (result of old injury or infection); loss of one or more fingers.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	1,578	7.81	14.76	Mountain whites.....	596	8.19	14.42
Agricultural, foreign and native white.....	2,629	8.97	17.03	Indian, sparsely settled....	276	8.68	16.34
Agricultural, native white, South.....	3,115	7.25	14.05	Mexican, sparsely settled....	150	5.41	11.47
Agricultural, Negro, 45 per cent plus.....	1,346	7.47	13.51	Native white, Scotch origin.	383	7.06	14.92
Eastern manufacturing.....	1,774	7.95	13.39	Russian, 10 per cent plus....	305	8.02	13.56
Commuters.....	470	6.34	11.77	Scandinavian, 10 per cent....	1,405	8.95	16.48
Mining.....	828	8.66	15.21	Finns, 10 per cent.....	148	10.86	20.91
Sparsely settled, 3 or less per square mile.....	442	9.78	17.07	French Canadians, 10 per cent plus.....	877	9.49	13.88
Desert.....	118	9.76	14.59	German and Scandinavian, each 10 per cent plus.....	881	8.93	17.26
Maritime.....	179	8.89	12.99	German and Austrian, 20 per cent plus.....	857	8.63	16.86
Mountain.....	458	8.68	15.20	German and Austrian, 15 per cent plus.....	2,890	8.22	15.24

TABLE 173.—*Deformities (various locations).*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	2,269	11.24	21.23	Mountain whites.....	1,027	14.11	24.84
Agricultural, foreign and native white.....	3,211	10.97	20.80	Indian, sparsely settled....	345	10.86	20.43
Agricultural, native white, South.....	5,024	11.69	22.65	Mexican, sparsely settled....	233	8.41	17.81
Agricultural, Negro, 45 per cent plus.....	2,028	11.24	20.35	Native white, Scotch origin.	574	10.57	22.35
Eastern manufacturing.....	2,091	9.36	15.78	Russian, 10 per cent plus....	465	12.23	20.67
Commuters.....	601	8.09	15.05	Scandinavian, 10 per cent....	1,874	11.95	21.97
Mining.....	985	10.30	18.10	Finns, 10 per cent.....	120	8.81	16.94
Sparsely settled, 3 or less per square mile.....	469	10.38	18.12	French Canadians, 10 per cent plus.....	1,041	11.27	16.47
Desert.....	137	11.33	16.94	German and Scandinavian, each 10 per cent plus....	1,276	12.93	25.00
Maritime.....	212	10.53	15.38	German and Austrian, 20 per cent plus.....	945	9.51	18.6
Mountain.....	659	12.49	21.86	German and Austrian, 15 per cent plus.....	3,551	10.10	18.71

TABLE 174.—*Atrophy of muscles, upper and lower extremities.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus..	747	3.70	6.98	Mountain whites.....	188	2.59	4.55
Agricultural, foreign and native white.....	853	2.91	5.52	Indian, sparsely settled....	93	2.93	5.51
Agricultural, native white, South.....	993	2.31	4.47	Mexican, sparsely settled....	44	1.59	3.36
Agricultural, Negro, 45 per cent plus.....	325	1.80	3.26	Native white, Scotch origin..	122	2.24	4.75
Eastern manufacturing.....	698	3.13	5.26	Russian, 10 per cent plus....	113	2.98	5.02
Commuters.....	189	2.54	4.73	Scandinavian, 10 per cent....	457	2.91	5.36
Mining.....	207	2.17	3.80	Finns, 10 per cent.....	31	2.28	4.38
Sparsely settled, 3 or less per square mile.....	91	2.01	3.51	French Canadians, 10 per cent plus.....	407	4.41	6.44
Desert.....	28	2.32	3.46	German and Scandinavian, each 10 per cent plus.....	295	2.99	5.78
Maritime.....	70	3.47	5.08	German and Austrian, 20 per cent plus.....	215	2.16	4.23
Mountain.....	178	3.37	5.91	German and Austrian, 15 per cent plus.....	951	2.71	5.02

TABLE 175.—*Chronic dislocation (other than hand).*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus..	269	1.33	2.52	Mountain whites.....	120	1.65	2.90
Agricultural, foreign and native white.....	291	.99	1.89	Indian, sparsely settled....	76	2.39	4.50
Agricultural, native white, South.....	589	1.37	2.66	Mexican, sparsely settled....	33	1.19	2.52
Agricultural, Negro, 45 per cent plus.....	280	1.55	2.81	Native white, Scotch origin..	58	1.07	2.26
Eastern manufacturing.....	163	.73	1.23	Russian, 10 per cent plus....	52	1.37	2.31
Commuters.....	58	.78	1.45	Scandinavian, 10 per cent....	179	1.14	2.10
Mining.....	102	1.07	1.87	Finns, 10 per cent.....	5	.37	.71
Sparsely settled, 3 or less per square mile.....	57	1.26	2.20	French Canadians, 10 per cent plus.....	74	.80	1.17
Desert.....	23	1.90	2.84	German and Scandinavian, each 10 per cent plus.....	108	1.09	2.12
Maritime.....	25	1.24	1.81	German and Austrian, 20 per cent plus.....	96	.97	1.89
Mountain.....	65	1.23	2.16	German and Austrian, 15 per cent plus.....	334	.65	1.76

TABLE 176.—*Muscle, fascia, tendon, sheath, contracture of.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus..	188	0.93	1.76	Mountain whites.....	148	2.03	3.58
Agricultural, foreign and native white.....	226	.77	1.46	Indian, sparsely settled....	23	.72	1.36
Agricultural, native white, South.....	525	1.22	2.37	Mexican, sparsely settled....	16	.58	1.22
Agricultural, Negro, 45 per cent plus.....	250	1.39	2.51	Native white, Scotch origin..	70	1.29	2.73
Eastern manufacturing.....	276	1.24	2.08	Russian, 10 per cent plus....	50	1.32	2.22
Commuters.....	61	.82	1.53	Scandinavian, 10 per cent....	118	.75	1.38
Mining.....	115	1.20	2.11	Finns, 10 per cent.....	8	.59	1.13
Sparsely settled, 3 or less per square mile.....	47	1.04	1.82	French Canadians, 10 per cent plus.....	122	1.32	1.93
Desert.....	12	.99	1.48	German and Scandinavian, each 10 per cent plus.....	77	.78	1.51
Maritime.....	45	2.24	3.26	German and Austrian, 20 per cent plus.....	78	.79	1.54
Mountain.....	60	1.14	1.99	German and Austrian, 15 per cent plus.....	351	1.00	1.85

TABLE 177.—*Total acquired deformities.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	6,735	33.34	63.01	Mountain whites.....	2,632	36.17	63.67
Agricultural, foreign and native white.....	9,588	32.73	62.11	Indian, sparsely settled....	1,097	34.54	64.96
Agricultural, native white, South.....	13,771	32.05	62.09	Mexican, sparsely settled....	663	23.93	50.69
Agricultural, Negro, 45 per cent plus.....	5,605	31.08	56.25	Native white, Scotch origin..	1,587	29.22	61.80
Eastern manufacturing.....	6,708	30.05	50.61	Russian, 10 per cent plus....	1,360	35.78	60.45
Commuters.....	1,811	24.39	45.36	Scandinavian, 10 per cent..	5,211	33.20	61.11
Mining.....	3,056	31.95	56.15	Finns, 10 per cent.....	464	34.04	65.53
Sparsely settled, 3 or less per square mile.....	1,423	31.49	54.96	French Canadians, 10 per cent plus.....	3,158	34.20	49.97
Desert.....	401	33.17	49.57	German and Scandinavian, each 10 per cent plus....	3,276	33.20	64.20
Maritime.....	648	32.18	47.03	German and Austrian, 20 per cent plus.....	2,997	30.17	58.98
Mountain.....	1,781	33.75	59.10	German and Austrian, 15 per cent plus.....	10,946	31.14	57.69

TABLE 178.—*Defective physical development.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	467	2.31	4.37	Mountain whites.....	296	4.07	7.16
Agricultural, foreign and native white.....	748	2.55	4.85	Indian, sparsely settled....	66	2.08	3.91
Agricultural, native white, South.....	1,185	2.76	5.34	Mexican, sparsely settled....	55	1.99	4.20
Agricultural, Negro, 45 per cent plus.....	751	4.17	7.54	Native white, Scotch origin..	156	2.87	6.08
Eastern manufacturing.....	655	2.94	4.94	Russian, 10 per cent plus....	85	2.24	3.78
Commuters.....	111	1.50	2.78	Scandinavian, 10 per cent..	415	2.64	4.87
Mining.....	223	2.33	4.10	Finns, 10 per cent.....	26	1.91	3.67
Sparsely settled, 3 or less per square mile.....	124	2.75	4.79	French Canadians, 10 per cent plus.....	415	4.49	6.57
Desert.....	45	3.72	5.56	German and Scandinavian, each 10 per cent plus....	271	2.75	5.31
Maritime.....	81	4.02	5.88	German and Austrian, 20 per cent plus.....	179	1.80	3.52
Mountain.....	210	3.98	6.97	German and Austrian, 15 per cent plus.....	769	2.19	4.05

TABLE 179.—*Deficient chest measurement.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	215	1.06	2.01	Mountain whites.....	103	1.42	2.49
Agricultural, foreign and native white.....	260	.89	1.68	Indian, sparsely settled....	36	1.13	2.13
Agricultural, native white, South.....	417	.97	1.88	Mexican, sparsely settled....	20	.72	1.53
Agricultural, Negro, 45 per cent plus.....	137	.76	1.38	Native white, Scotch origin..	77	1.42	3.00
Eastern manufacturing.....	246	1.10	1.86	Russian, 10 per cent plus....	29	.76	1.29
Commuters.....	28	.38	.70	Scandinavian, 10 per cent..	101	.64	1.18
Mining.....	56	.59	1.03	Finns, 10 per cent.....	3	.22	.42
Sparsely settled, 3 or less per square mile.....	37	.82	1.43	French Canadians, 10 per cent plus.....	207	2.24	3.28
Desert.....	10	.83	1.24	German and Scandinavian, each 10 per cent plus....	69	.70	1.35
Maritime.....	18	.89	1.31	German and Austrian, 20 per cent plus.....	60	.60	1.18
Mountain.....	46	.87	1.53	German and Austrian, 15 per cent plus.....	227	.65	1.20



TABLE 180.—*Underweight.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	5,332	26.40	49.87	Mountain whites.....	2,511	34.50	60.73
Agricultural, foreign and native white.....	6,130	20.92	39.71	Indian, sparsely settled...	744	23.41	44.05
Agricultural, native white, South.....	12,039	28.03	54.27	Mexican, sparsely settled...	547	19.75	41.82
Agricultural, Negro, 45 per cent plus.....	4,797	26.62	48.16	Native white, Scotch origin...	1,938	35.71	75.48
Eastern manufacturing.....	8,649	38.76	65.25	Russian, 10 per cent plus...	717	18.86	31.88
Commuters.....	1,785	24.08	44.73	Scandinavian, 10 per cent...	2,867	18.26	33.62
Mining.....	1,777	18.58	32.65	Finns, 10 per cent.....	174	12.76	24.58
Sparsely settled, 3 or less per square mile.....	793	17.56	30.63	French Canadians, 10 per cent plus.....	6,124	66.29	96.91
Desert.....	332	27.47	41.04	German and Scandinavian, each 10 per cent plus.....	1,848	18.74	36.21
Maritime.....	743	36.91	53.90	German and Austrian, 20 per cent plus.....	1,933	19.47	38.04
Mountain.....	1,320	25.03	43.80	German and Austrian, 15 per cent plus.....	7,104	20.20	37.45

TABLE 181.—*Under height.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	500	2.48	4.68	Mountain whites.....	178	2.45	4.81
Agricultural, foreign and native white.....	691	2.36	4.48	Indian, sparsely settled...	57	1.79	3.38
Agricultural, native white, South.....	746	1.74	3.36	Mexican, sparsely settled...	55	1.99	4.20
Agricultural, Negro, 45 per cent plus.....	401	2.22	4.03	Native white, Scotch origin...	129	2.38	5.02
Eastern manufacturing.....	1,284	5.75	9.60	Russian, 10 per cent plus...	81	2.13	3.60
Commuters.....	394	5.81	9.87	Scandinavian, 10 per cent...	295	1.88	3.46
Mining.....	210	2.20	3.86	Finns, 10 per cent.....	42	3.08	5.93
Sparsely settled, 3 or less per square mile.....	104	2.30	4.02	French Canadians, 10 per cent plus.....	754	8.16	11.93
Desert.....	41	3.39	5.07	German and Scandinavian, each 10 per cent plus.....	150	1.61	3.12
Maritime.....	92	4.57	6.67	German and Austrian, 20 per cent plus.....	174	1.75	3.42
Mountain.....	146	2.77	4.85	German and Austrian, 15 per cent plus.....	951	2.70	5.01

TABLE 182.—*Malnutrition.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	75	0.37	0.70	Mountain whites.....	39	0.54	0.94
Agricultural, foreign and native white.....	85	.29	.55	Indian, sparsely settled...	15	.47	.89
Agricultural, native white, South.....	138	.32	.62	Mexican, sparsely settled...	1	.04	.08
Agricultural, Negro, 45 per cent plus.....	57	.32	.57	Native white, Scotch origin...	11	.20	.43
Eastern manufacturing.....	61	.27	.46	Russian, 10 per cent plus...	10	.26	.44
Commuter.....	18	.24	.45	Scandinavian, 10 per cent...	31	.20	.36
Mining.....	14	.15	.26	Finns, 10 per cent.....	.....	.....	.....
Sparsely settled, 3 or less per square mile.....	8	.18	.31	French Canadians, 10 per cent plus.....	33	.36	.52
Desert.....	1	.08	.12	German and Scandinavian, each 10 per cent plus.....	27	.27	.53
Maritime.....	6	.30	.44	German and Austrian, 20 per cent plus.....	22	.22	.43
Mountain.....	18	.34	.60	German and Austrian, 15 per cent plus.....	87	.25	.46

TABLE 183.—*Total defective development and nutrition.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus....	7,017	34.74	65.63	Mountain whites.....	3,212	44.15	77.69
Agricultural, foreign and native white.....	8,390	28.63	54.35	Indian, sparsely settled....	965	30.36	57.14
Agricultural, native white, South.....	15,193	35.38	68.48	Mexican, sparsely settled....	706	25.50	53.97
Agricultural, Negro, 45 per cent plus.....	6,319	35.07	63.45	Native white, Scotch origin.	2,410	44.40	93.87
Eastern manufacturing.....	11,483	51.46	86.64	Russian, 10 per cent plus....	982	25.83	43.66
Commuters.....	2,512	33.88	62.94	Scandinavian, 10 per cent..	3,974	25.31	46.60
Mining.....	2,388	24.98	43.88	Finns, 10 per cent.....	271	19.88	38.27
Sparsely settled, 3 or less per square mile.....	1,137	25.18	43.92	French Canadians, 10 per cent plus.....	7,877	85.26	124.65
Desert.....	443	36.65	54.76	German and Scandinavian, each 10 per cent plus.....	2,531	25.66	49.60
Maritime.....	979	48.63	71.03	German and Austrian, 20 per cent plus.....	2,532	25.49	49.82
Mountain.....	1,823	34.56	60.50	German and Austrian, 15 per cent plus.....	9,810	27.90	51.71

TABLE 184.—*External genital organs, congenital defects.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus....	604	2.98	5.65	Mountain whites.....	189	2.64	4.56
Agricultural, foreign and native white.....	1,003	3.42	6.49	Indian, sparsely settled....	82	2.58	4.86
Agricultural, native white, South.....	1,226	2.85	5.54	Mexican, sparsely settled....	88	3.17	6.73
Agricultural, Negro, 45 per cent plus.....	362	2.00	3.63	Native white, Scotch origin.	128	2.35	4.99
Eastern manufacturing.....	743	3.33	5.61	Russian, 10 per cent plus....	119	3.13	5.29
Commuters.....	249	3.35	6.24	Scandinavian, 10 per cent..	590	3.76	6.93
Mining.....	312	3.26	5.73	Finns, 10 per cent.....	59	4.33	8.33
Sparsely settled, 3 or less per square mile.....	164	3.63	6.33	French Canadians, 10 per cent plus.....	346	3.74	5.49
Desert.....	42	3.48	5.19	German and Scandinavian, each 10 per cent plus.....	380	3.85	7.44
Maritime.....	67	3.33	4.86	German and Austrian, 20 per cent plus.....	304	3.06	5.99
Mountain.....	192	3.64	6.38	German and Austrian, 15 per cent plus.....	1,188	3.38	6.27

TABLE 185.—*Cleft palate and harelip.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus....	177	.88	1.65	Mountain whites.....	42	.58	1.02
Agricultural, foreign and native white.....	191	.65	1.24	Indian, sparsely settled....	27	.85	1.60
Agricultural, native white, South.....	265	.62	1.19	Mexican, sparsely settled....	14	.51	1.07
Agricultural, Negro, 45 per cent plus.....	63	.35	.63	Native white, Scotch origin.	38	.70	1.45
Eastern manufacturing.....	114	.51	.86	Russian, 10 per cent plus....	29	.76	1.29
Commuters.....	26	.35	.65	Scandinavian, 10 per cent..	113	.72	1.33
Mining.....	48	.51	.88	Finns, 10 per cent.....	15	1.10	2.12
Sparsely settled, 3 or less per square mile.....	18	.41	.70	French Canadians, 10 per cent plus.....	71	.77	1.12
Desert.....	4	.33	.49	German and Scandinavian, each 10 per cent plus.....	66	.67	1.30
Maritime.....	10	.50	.73	German and Austrian, 20 per cent plus.....	47	.47	.93
Mountain.....	31	.59	1.03	German and Austrian, 15 per cent plus.....	186	.53	.98

TABLE 186.—*Bullet or other recent wounds.*

Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.	Groups.	Total cases.	Ratio per 1,000.	Ratio per 1,000 cases in groups.
Agricultural, native white, North, 73 per cent plus...	76	0.38	0.71	Mountain whites.....	59	.81	1.43
Agricultural, foreign and native white.....	126	.43	.82	Indian, sparsely settled....	23	.72	1.36
Agricultural, native white, South.....	297	.69	1.34	Mexican, sparsely settled....	22	.79	1.68
Agricultural, Negro, 45 per cent plus.....	220	1.22	2.21	Native white, Scotch origin..	35	.64	1.36
Eastern manufacturing.....	65	.29	.49	Russian, 10 per cent plus....	16	.42	.71
Commuters.....	12	.16	.30	Scandinavian, 10 per cent....	73	.47	.86
Mining.....	51	.53	.94	Finns, 10 per cent.....	5	.37	.71
Sparsely settled, 3 or less per square mile.....	25	.55	.97	French Canadians, 10 per cent plus.....	31	.34	.49
Desert.....	8	.66	.99	German and Scandinavian, each 10 per cent plus....	42	.43	.82
Maritime.....	10	.50	.73	German and Austrian, 20 per cent plus.....	41	.41	.81
Mountain.....	41	.78	1.36	German and Austrian, 15 per cent plus.....	117	.33	.62

## H. COMPARATIVE DISTRIBUTION OF DEFECTS IN RURAL AND URBAN DISTRICTS.

## I. GENERAL DEFECTS.

For the whole United States there are found 557 defects per 1,000 men examined, or considerably more than half as many defects found as men examined. This, then, is the number deviations from which are to be discussed. For rural districts alone the rate is 528, and for urban districts alone it is 609; that is, fewer defects were noted by local boards and mobilization camp boards in registrants from rural than from urban districts. Part of this excess of defects in cities is probably due to the more critical examination by the physicians of cities; and to a more critical grade of examiners in the camps that drew from the more densely populated regions. Thus, in December, 1917, examiners at Camp Devens of New England registrants, largely urban, found only 25 per cent of recruits from certain States without some defects; at Camp Custer, largely rural, over 70 per cent were found without defect; at Camp Pike 55 per cent; at Travis, 45 per cent. These proportions varied from month to month and from State to State; but they tend to support the conclusion that urban registrants received a more critical examination than rural registrants.

Accepting the figures as they are given, it appears that defects were found only eighty-seven one hundredths or seven-eighths, as commonly in rural as in urban districts. It will be interesting to consider the size of this ratio rural divided urban for a number of the principal defects. These results are given in Table 187, in which the defects are given in order, those showing the highest rural divided urban ratio appearing at the top of the table. A graphic representation of this table is given in figure 3.

## II. DEFINITION OF URBAN AND RURAL, LIST OF CITIES.

For the purposes of the present chapter the records from local boards were divided into two groups—those from urban and those from rural districts. Actually the records for certain selected cities



of over 25,000 inhabitants were tabulated separately and constitute the statistics for the urban districts, the remainder constitutes the rural districts. The following is a list of cities included in the urban districts:

## THE URBAN DISTRICTS, CITIES OF OVER 25,000.

Alabama :	Kentucky—Continued.
Birmingham.	Louisville.
Mobile.	Newport.
Montgomery.	Louisiana : New Orleans.
Arkansas : Little Rock.	Maine : Portland.
California :	Maryland : Baltimore.
Berkeley.	Massachusetts :
Los Angeles.	Boston.
Oakland.	Brockton.
Pasadena.	Cambridge.
Sacramento.	Chelsea.
San Diego.	Chicopee.
San Jose.	Everett.
San Francisco.	Fall River.
Colorado :	Haverhill.
Denver.	Holyoke.
Pueblo.	Lawrence.
Connecticut :	Lowell.
Bridgeport.	Lynn.
Hartford.	New Bedford.
New London.	Pittsfield.
New Britain.	Quincy.
Delaware : Wilmington.	Salem.
District of Columbia : All.	Springfield.
Florida :	Waltham.
Jacksonville.	Worcester.
Tampa.	Fitchburg.
Georgia :	Malden.
Atlanta.	Somerville.
Augusta.	Taunton.
Macon.	Michigan :
Savannah.	Battle Creek.
Illinois :	Detroit.
Aurora.	Flint.
Chicago.	Grand Rapids.
Danville.	Jackson.
Decatur.	Kalamazoo.
East St. Louis.	Lansing.
Quincy.	Bay City.
Peoria.	Saginaw.
Rockford.	Minnesota :
Springfield.	Duluth.
Indiana :	Minneapolis.
Evansville.	St. Paul.
Indianapolis.	Missouri :
South Bend.	Joplin.
Terre Haute.	Kansas City.
Iowa :	St. Joseph.
Cedar Rapids.	St. Louis.
Davenport.	Montana : Butte.
Des Moines.	Nebraska :
Dubuque.	Lincoln.
Sioux City.	Omaha.
Waterloo.	New Jersey :
Kansas :	Atlantic City.
Kansas City.	Bayonne.
Topeka.	Camden.
Wichita.	Elizabeth.
Kentucky :	Hoboken.
Covington.	Jersey City.
Lexington.	Newark.

## New Jersey—Continued.

Passaic.  
Paterson.  
Perth Amboy.  
Trenton.  
West Hoboken.  
Burlington.  
East Orange.

## New York:

Albany.  
Amsterdam.  
Auburn.  
Binghamton.  
Buffalo.  
Elmira.  
Jamestown.  
Mount Vernon.  
New Rochelle.  
New York.  
Niagara Falls.  
Poughkeepsie.  
Rochester.  
Schenectady.  
Syracuse.  
Troy.  
Utica.  
Watertown.  
Yonkers.

## North Carolina:

Charlotte.  
Wilmington.

## Ohio:

Akron.  
Canton.  
Cincinnati.  
Cleveland.  
Columbus.  
Dayton.  
Hamilton.  
Lima.  
Newark.  
Springfield.  
Toledo.  
Youngstown.  
Zanesville.

## Oklahoma: Oklahoma City.

## Oregon: Portland.

## Pennsylvania:

Allentown.  
Altoona.  
Chester.  
Easton.  
Erie.  
Harrisburg.  
Johnstown.  
Lancaster.  
McKeesport.  
Newcastle.

## Pennsylvania—Continued.

Norristown.  
Philadelphia.  
Pittsburgh.  
Reading.  
Scranton.  
Wilkes-Barre.  
Williamsport.  
York.

## Rhode Island:

Newport.  
Pawtucket.  
Providence.  
Woonsocket.

## South Carolina:

Charleston.  
Columbia.  
Greenville.  
Spartanburg.

## Tennessee:

Chattanooga.  
Knoxville.  
Memphis.  
Nashville.

## Texas:

Austin.  
Dallas.  
El Paso.  
Fort Worth.  
Galveston.  
Houston.  
San Antonio.  
Waco.

## Utah:

Ogden.  
Salt Lake City.

## Virginia:

Lynchburg.  
Norfolk.  
Portsmouth.  
Richmond.  
Roanoke.

## Washington:

Seattle.  
Spokane.

## West Virginia:

Huntington.  
Wheeling.

## Wisconsin:

Green Bay.  
La Crosse.  
Madison.  
Milwaukee.  
Oshkosh.  
Racine.  
Sheboygan.  
Superior.

### III. DETAILED DISCUSSION OF COMPARATIVE FREQUENCY OF VARIOUS DEFECTS IN RURAL AND URBAN SECTIONS.

In this section there will be taken up in order the principal defects and diseases and a comparison made of the relative frequency of occurrence in urban and rural districts as defined above. First, the diseases will be considered in the order in which they occur in the

draft classification table, and, secondly, in order of the size of the rural ratio divided by urban ratio.

TABLE 187.—*Table giving for the various defects the ratio rural divided by urban for the whole United States, arranged in order of size of this ratio. Ratios greater than 1 indicate defects commoner in rural districts; ratios less than 1 indicate defects commoner in urban districts.*

Pterygium	3.12
Trachoma	2.28
Mental deficiency	2.01
Muscular rheumatism	1.82
Bullet or other recent wounds	1.69
Anemia	1.57
Hysteria	1.44
Malnutrition	1.41
Chronic dislocation (other than hand)	1.39
Conjunctivitis (other than trachoma)	1.39
Pes cavus	1.35
Cleft palate	1.31
Deformity of lower extremity	1.30
Deformity of head	1.28
Chorea	1.28
Arthritis	1.24
Deformity of trunk	1.24
Malunion of fracture of lower extremity	1.24
Deformity of chest	1.24
Deformity of upper extremity	1.23
Tumor, benign	1.22
Asthma	1.21
Pyorrhea, alveolaris	1.20
Loss of part of foot	1.20
Deformity of foot	1.16
Defective physical development	1.14
Blind, one eye	1.14
Ankylosis:	
Fibrous, of joint	1.13
Bony, of joint	1.12
Epilepsy	1.12
Hemorrhoids	1.12
Cicatricial deformities	1.12
Deformities of hand (result of old infection)	1.11
Loss of upper extremity	1.10
General unfitness for military service	1.10
Defective speech	1.10
Pleurisy	1.10
Gonococcus infection	1.09
Myocardial insufficiency	1.08
Exostoses	1.07
Malunion of fracture of upper extremity	1.05
Talipes	1.05
Deaf	1.04
Venereal diseases, total	1.04
Suspected tuberculosis	1.03
Varicocele	1.03
Functional cardiac disorders, total	1.03
Loss of one or more fingers	1.03
Hernia	1.02
Hydrocele	1.01
Rhinitis	1.00
Psychoses	1.00
Chancroid	1.00
Phlebitis	1.00
Enucleation of the eye	.99
Goiter, simple	.99
Deficient chest measurement	.99
Shortening of lower extremity	.98



Hypospadia	. 98
Blindness, both eyes	. 97
Tonsillitis, hypertrophic	. 97
Minor paralyses, total	. 96
Deviation of nasal septum	. 96
Neurocirculatory asthenia	. 94
Psychoneuroses	. 93
Defective hearing	. 92
Cryptorchidism	. 92
Bronchitis	. 91
Fistula in ano	. 91
Curvature of spine	. 90
Strabismus	. 90
Varicose veins	. 90
Atrophy of upper extremities	. 90
Contraction of muscles, etc	. 89
Syphilis	. 89
Cardiac dilatation	. 88
Atrophy of lower extremities	. 87
Depressed fracture of skull	. 85
Nystagmus	. 85
Tachycardia	. 84
Enlarged inguinal rings	. 84
Sinusitis	. 83
Emphysema	. 81
Deaf and dumb	. 81
Neurasthenia	. 81
Constitutional psychopathic state	. 81
Defective and deficient teeth	. 81
Loss of lower extremity	. 79
Pronated foot	. 78
Tuberculosis, pulmonary	. 78
Arteriosclerosis and hypertension	. 77
Pes Planus	. 77
Underweight	. 76
Dementia precox	. 76
Diabetes	. 75
Diseases of kidney and annexa	. 75
Hallux valgus	. 74
Goiter, exophthalmic	. 74
Cardiac hypertrophy	. 72
Valvular diseases of the heart, total	. 71
Myocarditis	. 71
General paralysis of the insane	. 67
Endocarditis	. 65
Nephritis	. 65
Amblyopia	. 64
Obesity	. 63
Metatarsalgia	. 63
Choroiditis	. 62
Errors of refraction, total	. 61
Tabes dorsalis	. 59
Cataract	. 58
Perforated ear drum	. 53
Underheight	. 51
Otitis media	. 47
Drug addiction	. 25

1. *Pellagra*.—This is a disease of rural districts. Of the 252 cases recorded, 236 came from rural districts and only 16 from urban districts. The ratio of rural to urban incidence is 6.5, the highest ratio of any defect. Of other infectious diseases, not particularly specified, there is found a slightly greater proportion from the rural districts, namely, 1.36 times the urban frequency.

2. *Pulmonary tuberculosis*.—Of the 55,631 cases of this disease recorded, 23,064 came from urban districts and 32,567 from rural. This gives a ratio for the cities of 23.53 and for the rural 18.37. The rural districts, therefore, show less pulmonary tuberculosis than the urban districts in the proportion of 78 to 100. This reverses the relation described in Bulletin No. 11, Surgeon General's Office, for the first million men. The first million men included only those who had been accepted by local boards and arrived at camp, and the total numbers under consideration were only 3,616. The present figures include the rejections by local boards, which were vastly more numerous, and taking this into account we get the result as stated. The relatively low rate for the rural district is largely determined by the low rate in agricultural sections of the country, especially of the North. The German and Scandinavian part of the population show also a strictly low incidence of tuberculosis. The relatively high urban rate is influenced by conditions in the eastern manufacturing sections in the maritime region and by the French-Canadian stock in our cities, which has a high incidence of the disease. No doubt, also, certain of the recent immigrants still dwelling in cities have combined to swell the urban ratio. Thus, we see that the ratio in New York City is 23.3 per 1,000; Philadelphia, 23.6 per 1,000; Chicago, 21.7 per 1,000; and Boston, 20.7 per 1,000.

Suspected tuberculosis or weak lungs was found in nearly the same proportion from rural as from urban districts. The fact that suspected tuberculosis is quite as high in rural as in urban districts, whereas frank pulmonary tuberculosis is less common, may possibly be accounted for on the ground that there has been a migration from cities to the country of young men with suspected tuberculosis or weak lungs, thus swelling abnormally the proportion of rural tuberculosis. As for tuberculosis of other organs, this has nearly the same ratio of rural to urban incidence as has pulmonary tuberculosis (0.88). On the whole, tuberculosis shows itself somewhat less common in the open country than in cities, and this despite the fact that there is constantly going on a migration of young persons with tuberculosis from the cities to the country on account of incipient tuberculosis.

3. *Venereal diseases*.—If all venereal diseases are combined there is obtained a total incidence for rural districts of 32.93 per 1,000 and for urban districts of 31.62 per 1,000. This shows a slightly greater incidence of venereal disease in rural than in urban districts in the proportion of 1.04. This excess of venereal disease in rural districts is confirmatory of the results found in the first million draft recruits, but the proportion was very much larger in the first million draft recruits than in the whole two and one-half million men considered here. The present study of the larger groups shows practical equality. Considering the three diseases under this group in detail, we find that syphilis is less common in rural than urban districts in the ratio of 89 to 100. Chancroid has practically the same ratio in the two districts, while gonococcus infection is commoner in rural than urban districts, in the ratio of 109 to 100. The relatively greater incidence of syphilis in cities than in rural districts is evidently largely due to its high incidence in the smaller cities, for the four larger cities studied in this report have far lower rates for this dis-

ease then even the rural districts. The same thing is true of the other two categories of venereal disease.

4. *Curvature of the spine.*—Of 15,231 cases of this defect, 5,801 were found in urban districts and 9,430 in rural. The first number gives a ratio of 5.91 and the second of 5.32. It appears, therefore, that curvature of the spine is found less commonly in rural than urban districts in the ratio of 90 to 100. The ratio of curvature of the spine is even higher than the average of all urban districts in the larger cities. Thus, in New York City the ratio is 5.96; Boston, 5.98; and Chicago, 7.62. Just why curvature of the spine is relatively common in cities is uncertain. On one hand, a possible factor is insufficiency of the proper sort of food inducing rickety curvature of the spine in the children of cities. In so far as posture is responsible for the result, it is to be expected that curvature of the spine would show itself less commonly in the rural districts where there is greater opportunity for varied spontaneous exercise to be taken by young people than in the cities.

5. *Cancer and other malignant tumors.*—The total number of these defects was not great because of the comparative youth of the men examined. Only 485 cases were recorded altogether. Of these, 138 came from the urban districts and 347 from rural districts, giving a ratio of 14 of the former and 20 of the latter; that is, the incidence of cancer in rural districts is to that in urban districts as 143 is to 100. The numbers are not very large and discussion of the differences is hardly justified.

5a. *Benign tumors.*—There were 1,702 cases of benign tumors noted, of which 529 came from urban districts and 1,173 from rural, giving a ratio of 0.54 for the former and 0.66 for the latter. The ratio of rural to urban incidence is as 122 is to 100. This result is in the same direction as that for malignant tumors. Incidentally, it may be noted that the ratio for benign tumors in the large cities tends to run rather low. Thus, for New York City it is 0.44; for Chicago, 0.42; for Philadelphia, 0.34; but, on the other hand, it is 0.81 for Boston.

6. *Arthritis.*—There were 6,354 cases of this condition noted in the United States, of which 1,952 came from urban districts and 4,402 from rural. The ratio of the former is 1.99 and of the latter 2.48. This gives 124 for the rural to 100 for the urban. The amount of arthritis in the larger cities is still less than in urban districts in general. Thus the ratios are 1.3 for New York, 1.5 for Philadelphia, 1.6 for Boston, and 2.2 for Chicago. The excess of arthritis in rural districts is largely due to its excessive frequency in the Southern States, and in those States to its exceptional abundance among the Negroes. Thus, the rate for the black belt of the South for arthritis is 3.74. Arthritis is especially common in rural districts, therefore, because of Negroes living prevalingly in rural districts.

The large amount of arthritis in Negroes is doubtless largely associated with the excessive amount of gonococcus infection in the race, so that the excessive amount of arthritis in the rural districts is largely due to the abnormally large amount of gonococcus infection among the Negro recruits from rural districts.

7. *Diabetes mellitus.*—There were 740 cases of this disease recorded, of which 315 came from urban districts and 425 from rural districts. The ratios are 0.32 and 0.24, respectively. This gives a



proportion of rural to urban of 75 to 100. If one compares with the urban districts in general the large cities, one finds that they show even a greater amount of diabetes. Thus, the ratio for New York City is 0.43; for Philadelphia, 0.38; for Chicago, 0.38; and for Boston, 0.30. Comparing the different States, one finds that the Southern States (Louisiana, Georgia, South Carolina, Florida, etc.) are characterized by a small amount of diabetes, whereas the Northern and more densely populated States, including Connecticut, Vermont, Oregon, South Dakota, and Maine are those of high incidence of diabetes. The Southern States are prevaillingly rural and it may be because of some peculiarity of the southern population giving low liability to diabetes that the rural part of the population as a whole shows such a relatively low rate. An explanation of the statistical results is gained by noting that Negroes are peculiarly free from diabetes. Thus, the rate for the black belt in the South (section No. 4) is 0.13 and for the South as a whole (interspersed with a large Negro population), is about 0.14 as contrasted with 0.39 for the agricultural region of the North of mixed foreign and native origin. We may thus conclude that part of the small amount of diabetes found in rural districts is due to the presence in the rural districts in the South of a race which is relatively little subject to it. However, this is probably not the whole story. For the rural districts in the North, though they have a higher rate than rural districts in the South, have also a lower rate than the eastern manufacturing section (0.49), and the great cities like New York, Chicago and Philadelphia. This may in part be due to constitutional differences between the population of agricultural areas and those of our great cities and it may possibly be due to some environmental conditions induced by the great cities themselves.

8. *Exophthalmic goiter*.—This disease was recorded in 8,647 cases, of which 3,684 were from urban districts and 4,963 from rural. The ratio for rural districts was 2.80 and for urban 3.76. This gives a proportion of rural to urban of 74 to 100 for this disease. Inquiring into the significance of this defect, we have first to note that it is relatively uncommon in New York City (2.78); in Philadelphia (2.12), and still more in Boston (0.56), whereas it is exceedingly common in Chicago (8.59). It is clear, then, that the high urban rate is not a characteristic of cities as such, but it is due to the presence in certain cities of conditions especially inciting to this disease or of a population peculiarly liable to it. In comparing the incidence of exophthalmic goiter in the different States we find that there is less of it in the Southern States of Texas, Arkansas, Florida, Louisiana, Alabama, and Mississippi. These constitute part of the great rural area of the country. On the other hand, the more densely populated States of Michigan, Illinois, Pennsylvania, and Ohio come toward the top of the list. However, it is clear that it is not density alone which determines the order of the States, since Massachusetts is third from the bottom and Rhode Island and Connecticut are in the lower third of the series. One reason why the Southern States have such a small proportion of exophthalmic goiter is because of the negro population. However, in the black belt (section No. 4) the rate for exophthalmic goiter is only 0.99, and even in the South outside of the black belt it is 1.60, while in the northern agricultural districts the ratio is 3.95 and 4.95 for section 1 and section 2, respectively. Indeed, the eastern

manufacturing district has a smaller rate for exophthalmic goiter than has the agricultural districts of the North. But is it not solely due to the absence of a negro population that Wisconsin, Michigan, and Oregon stand so high in the series of States with exophthalmic goiter? Examination of the map, figure 5, shows that the whole district around the Great Lakes and the extreme Northwest are districts of high incidence of exophthalmic goiter, whereas both urban and rural districts in the East are relatively free from it. We conclude, therefore, that there is something in the conditions of the region referred to which tends to produce exophthalmic goiter. As the end result of all these considerations we see that a deficiency of exophthalmic goiter in the rural population is due to a complex of causes, such as—

(a) A relative insusceptibility of negroes to this disease.

(b) The relatively small incidence of the disease throughout the southern rural States of both whites and blacks.

(c) The relatively high incidence of the great cities of the Great Lakes area, such as Chicago, Cleveland, Detroit, and Milwaukee; its frequency throughout the more densely populated States of the Great Lake Basin, such as Ohio, parts of Pennsylvania, and Michigan; and its frequency in cities of the North to Pacific States.

The end result, therefore, of an incidence in rural districts of 74 per cent of urban, the frequency is merely the result of these causes acting in different directions.

9. *Simple goiter*.—This disease was found in 11,971 cases, of which 4,289 were from urban districts and 7,682 from rural. The ratios are, respectively, 4.37 and 4.32. In other words, the rural rate is 99 to urban 100. Simple goiter is seen to be somewhat commoner than exophthalmic goiter in rural districts. Also, its ratio of occurrence is much smaller in the large cities than is that of exophthalmic goiter. Thus, for example, for New York City the ratio is 0.76; for Philadelphia, 1.11; for Boston, 0.20; and for Chicago the rate is 11.51. We see, then, that the rate for the great eastern cities is less for simple than for exophthalmic goiter, whereas for Chicago the rate is even greater than for exophthalmic goiter and is more than fifty times as great for Chicago as for the city of Boston. The distribution of simple goiter in the different States is a good deal like that of exophthalmic goiter, but is even more concentrated in the States of the Northwest and of the Great Lakes. For the Southern States the rate is small and is relatively low as compared with exophthalmic goiter for the densely populated States of Ohio, Pennsylvania, and New York. As in the case of exophthalmic, so in the case of simple goiter, the black belt of the South is relatively free from it, whereas the agricultural regions of the North have relatively far more of it than of exophthalmic goiter, and the agricultural section which is occupied by a mixture of foreign and native whites has a much higher rate than that occupied by native whites primarily. It is clear that certain European races are characterized by an extraordinary rate of simple goiter. Thus, in the group of sections occupied by 10 per cent Finns or over we have a rate of 20.3, but this may be because the Finns occupy mountainous districts. However, the Scandinavian rate is 13.22, and these are mostly agriculturists; but both the Finns and the Scandinavians are found in the Northwest, where there is reason for thinking that the environmental conditions tend to increase the

amount of simple goiter. The end result of these complex of causes is, then, the practicable equality that there is between urban and rural districts. On the one hand, the rural rate is depressed by the low rate in the agricultural areas of the South, especially those occupied by negroes. On the other hand, the rural rate is raised by the high incidence of simple goiter in the great agricultural territories of the North and Central West. The urban rate is raised by the high incidence in Chicago and other cities of the Great Lakes region, but it is depressed by the extraordinarily low rate in the great cities on the Atlantic coast, where those conditions which incite goiter in the Great Lakes region and the Northwest seem to be largely absent.

10. *Anemia*.—There were 524 cases falling into this category in the whole United States of which 139 came from urban districts and 385 from rural. The respective ratios are 0.14 and 0.22. It appears, thus, though the numbers are small, that there is more anemia in rural districts than in urban, or, precisely, the rural is 1.57 times the urban rate. Moreover, if in order to get an explanation of this result, we examine the conditions in great cities, we find that the rate is exceptionally low in some of them. Thus it is 0.08 in New York City, 0.04 in Philadelphia, 0.20 in Boston, and 0.13 in Chicago. Doubtless the low rate in the great cities of New York, Philadelphia, and Chicago have helped in an important way to depress the rate from the urban districts. Anemia appears to be especially common in section No. 1, the native white agricultural section of the north (0.31). It is relatively rarer in the agricultural region of the North which has a more mixed foreign and native population (0.16). The Southern agricultural areas, both white and black, are intermediate in their rate. Anemia is exceptionally high in the French Canadian section (0.49) and in the German and Austrian section No. 2, it is 0.24. It is difficult to draw from these data any conclusion concerning the reason for the difference in the proportion of anemia in urban and rural districts. It is partly because the term itself includes such a variety of diseases, or rather, because it is merely a symptom and not a disease itself. An anemic condition may be due to parasites in the blood which destroy the red-blood corpuscles, as in malaria, or to some condition which prevents the production of red-blood corpuscles, or to a condition which depresses the normal oxidation of the hemoglobin. So far as anemia producing parasites are a factor, these are commoner in the Southern rural districts in the form of malaria and hookworm; it is probable on the latter account that the mountain white section (No. 12) shows a ratio of 0.30 for anemia. The cities are relatively free from anemia due to parasites.

11. *Obesity*.—This condition was observed in 4,967 cases of which 2,323 were from urban districts and 2,644 from rural. The ratio is respectively 1.49 rural to 2.37 urban. The ratio of rural to urban incidence is 0.63. In other words, obesity is about two-thirds as common in rural as in urban districts. Examining the statistics for the large cities, we find the rate for New York to be 2.87, markedly above the average for urban districts; that for Chicago, 2.33, or about the average. The rate for Boston is 1.92, which is markedly below the average of the urban districts and that for Philadelphia



1.40, slightly less than the average even of rural districts. If one compares obesity for different sections of the country, we find that it is very low for the Negroes in the South (0.98). It is relatively low in the mountain whites (1.17). It is somewhat higher in the northern agricultural region (1.62 for group No. 2) and still higher for the eastern manufacturing and commuter groups (2.64 and 2.37, respectively). The rate is high among the French Canadians (3.72) and relatively low among the Russian districts (1.58), and in those inhabited largely by Scandinavians (1.69). In comparing its incidence among the different States, one finds that the densely populated State of Rhode Island has by far the highest incidence (5.73). New York State has an incidence of 3; Massachusetts of 2.92. On the other hand, the sparsely populated States of the West and most of the Southern States have a ratio of under 1.5.

It may be concluded, therefore, that the greater incidence of obesity in cities is partly due to their freedom from such parasites as tend to reduce weight, partly perhaps due to a freedom from the tuberculosis which has had such a marked influence on the population of Arizona and New Mexico, partly due to the freedom from that active life which is found widespread in frontier States like Wyoming, Montana, and Idaho, and partly perhaps due to a state of prosperity and wealth which leads to relative inactivity and perhaps overfeeding. Obesity, in its extreme forms, is a constitutional disorder and the high rate in certain of the Eastern States may be due to the presence in those States of special races which, like the French Canadians, are particularly liable to such disorders and to the fact that young men who are obese are less apt to go into the western frontier States to participate in the active life there, than their sparer brothers and consequently there is an excess of them in the East.

12. *Muscular rheumatism*.—This term was applied to 1,170 recruits, of whom 270 came from urban districts and 900 from rural. Their respective ratios are 0.28 and 0.50. But there were relatively 1.82 times as many dwellers in rural districts which were regarded as having muscular rheumatism as from urban districts. If, now, one examines the ratios from the large cities, one is struck by their smallness. Thus, the rate for New York City is 0.13; for Philadelphia, 0.13; Chicago, 0.23; and for Boston, 0.20. "Muscular rheumatism" is found in relatively great abundance in the South, especially in the black belt, and it is much less common in the eastern manufacturing and commuter sections. The rate among the mountain whites is exceptionally high (0.80). Agriculturists of all types, whether Scandinavians or Germans, have a high rate for muscular rheumatism, but not so high as the population of the black belt.

In attempting to explain the greater incidence of muscular rheumatism in rural than in urban districts, one must first of all recognize that muscular rheumatism is a vague term, and is not applied to a definite disease. It is probably often not differentiated from arthritis. The high incidence of arthritis among the negroes has been attributed to gonococcus infection. Probably so-called muscular rheumatism of some types is induced by exposure to climatic conditions; and since dwellers of the cities are relatively protected from such conditions, this may well account for a part of the difference between urban and rural dwellers.

13. *Alcoholism*.—There were 853 cases of alcoholism recorded by the examiners, of which 552 came from urban districts and 301 from rural. This gave a ratio of 0.56 and 0.17, respectively, or the ratio of rural to urban is as 30 is to 100. The number of cases of alcoholism recorded seems surprisingly small. Probably only cases of acute alcoholism, with marked symptoms, were recorded. Alcoholism was recorded for New York City in the ratio of 0.44; for Philadelphia, 0.46; for Chicago, 1.36, and for Boston, 1.57. It will be noted that the rate for alcoholism is relatively low in the two largest eastern cities, exceptionally high in Boston. In comparing the rates of alcoholism in the different States, we find the maximum in Rhode Island (1.52 per 1,000), and large rates in Massachusetts, Illinois, California, and Connecticut. Three of these are the densely populated New England States. On the other hand, there were no cases of alcoholism recorded from Arizona, Florida, Oregon, Utah, and Washington, and, in fact, in each of the States the proportion of men examined who were regarded as victims of alcoholism is less than 0.2 per 1,000. Practically all of the southern States give less than the rural rate of 0.17. The highest rates are in the prevailingly northern groups. Considering the different groups, we find an extraordinarily low rate in the South for the black belt of only 0.04 and for other agricultural areas 0.14. On the contrary, for the eastern manufacturing group the rate rises to 0.60. The rate is relatively low among the Scandinavians, chiefly agricultural (0.18), and exceptionally high among the French Canadians (0.91). The rate in those sections of the country occupied by a large proportion of Germans and Austrians is also high (0.38). The reason for the contrast between rural and urban districts in respect to alcoholism found is in part due to the small amount of alcoholism in the southern States; a result which is naturally ascribed to the prohibition in effect there. Also, the ratio for rural districts has been diminished by the fact that many of the northern agricultural States were, at the time of the draft, already prohibition States. The difference between urban and rural districts would be still more striking were it not that, for some reason, the cities of New York and Philadelphia have such a low rate, probably due to the presence in them of certain races that are not given to drunkenness. On the other hand, Chicago and Boston have an exceptionally high rate, 2 to 3 times that of urban districts in general, and there are doubtless many other large cities of the North which have similar high rates. So far as the northern States go, the relatively low alcoholic rate in rural districts is due to the presence in many such districts of races which, like the Scandinavians, have slight tendency toward alcoholism. Thus, it comes about that the rural South plus the prohibition northern States, plus the Scandinavians and other exceptionally sober parts of our population that live in rural districts, tend to diminish the incidence of alcoholism in the rural male population.

14. *Drug addiction*.—It is one of the surprises of the results from the draft examinations that there were 1,488 cases of drug addiction as contrasted with only 853 cases of alcoholism. The 1,488 cases were distributed as follows: 1,022 from urban districts and 466 from rural. The respective ratios are 1.04 and 0.26. This gives a ratio of rural to urban of 25 per cent, or in other words, there was

only about one-quarter as much drug addiction among the draftees from rural as from urban districts. In seeking an explanation of the great excess of drug addiction in urban over rural localities, we note first that the ratio for New York City is 2.15, or more than twice that for urban districts in general. For Philadelphia it is 1.07, or about the same as the average of urban districts. For Boston it is 0.86 and for Chicago 0.24; for California, section 5 (San Francisco) it is 1.86. Thus, it appears that New York City shows an extraordinarily high frequency of drug addiction. If we compare the different States in this respect, we find that Delaware stands almost in a class by itself in the amount of drug addiction reported, namely, 2.37. The following States have above the average amount for the urban districts, namely, New York, California, Rhode Island and Nevada. The group of Southern rural States occupies a somewhat middle position. Florida has a rate of 0.50; Texas, 0.34; Louisiana, 0.30; and Mississippi, 0.27. At the bottom of the list stand such Northern States as North Dakota, Indiana, Wisconsin, South Dakota, and Vermont, prevaillingly rural States. If, now, we examine the rate in the different sections, one finds that it is in general low in agricultural and commuter sections, both the North and South. It is higher in the eastern manufacturing and commuter sections and still higher in the desert section near California, where drug addiction is exceptionally common. There is much more drug addiction in the sections occupied largely by Germans and Austrians than there is in those occupied by Scandinavians, or by Scandinavians and Germans.

The foregoing considerations seem to justify the conclusion that drug addiction is above all an urban disease, partly because of the greater facilities for getting drugs in cities and probably in part because of the demand for it by persons with such nervous make-ups as are found in excess in the cities. The influence of an introduction of opium into California by the Chinese is not to be overlooked. This shows itself not only in the high rate for California and adjacent desert, but also in the high rate for the Mexican group in the southwest and in the group which contains a large proportion of Indians.

15. *Tabes dorsalis*.—This disease is also known as locomotor ataxia. Of this disease, there were recorded all together 539 cases, 260 from urban and 279 from rural districts, giving a ratio of 0.27 and 0.16 respectively. This gives a ratio of rural to urban of 0.59. We see, then, that tabes dorsalis was recorded from a much larger proportion of the city population than the rural. Comparing the four large cities, we find a rate of 0.14 for New York City; 0.34 for Chicago; 0.21 for Philadelphia and 0.05 for Boston, the latter depending on a single case only detected in the local board examination. The relatively large amount of tabes dorsalis discovered in Chicago agrees with the relatively large amount of syphilis discovered there. Tabes dorsalis is uncommon in the southern agricultural areas; the syphilis in them does not as commonly result in tabes. It has a ratio of 0.22 in the black belt and 0.14 outside. The ratio for the northern agricultural areas is about 0.24. The maritime group shows a maximum rate for tabes dorsalis of 0.30 but this is based on only six cases. The Scandinavian population,



as illustrated by Group 16, has a fairly low rate of 0.16; the German and Austrian group (No. 20) of 0.22. Not too much stress is, however, to be laid upon these differences, as they are all based upon a rather small number of cases.

16. *Paralytic conditions*.—Under this head is to be considered draft classifications Nos. 38–45, inclusive, including hemiplegia and apoplexy, facial paralysis, paraplegia, monoplegia, paralysis of ocular muscle, paralysis of nerve, paralysis of muscle, paralysis (location and cause not given). These paralytic conditions are thus grouped because the numbers are ordinarily not large. The most numerous category is monoplegia, being the paralysis of a single appendage. Of this there were 3,718 cases noted of which 1,348 came from urban districts and 2,370 from rural, giving a ratio of 1.37 and 1.34, respectively, or essential equality. The whole group of paralytic conditions is about equally common in rural and urban districts. The relation of rural to urban is 0.98. The independence of these conditions on density of population is illustrated in the graph, Plate XXI, figure 4, "Apoplexy and Paralytic Conditions," in which the highest rate for any State is found in Vermont, which is rather sparsely populated, and the second highest rate in Rhode Island, which is the most densely populated of the States.

17. *Epilepsy*.—This disease was recorded in 14,195 cases, of which 4,695 were from urban districts and 9,500 from rural. This gives a ratio of 4.79 and 5.36 respectively. The relation of rural to urban rate is 112 to 100. Three of the four large cities all show a high rate for epilepsy. Thus, for New York City the rate is 5.62; for Philadelphia, 5.52; and for Boston, 6.13. For Chicago, however, the rate is 4.53, a low rate. The low rate shown in cities in general does not hold for the larger cities, especially in the eastern seaboard. Comparing the rate for epilepsy in the different States as shown in Plate XXIV, figure 4, it appears that Vermont exceeds all other States. This is probably in part influenced by the large proportion of French Canadians in the population of this State (about 10 per cent). In the French Canadian section, the average ratio for epilepsy in recruits was 6.11, a rather high average as compared with other rural districts. There are doubtless other causes contributing to the high rate in Vermont. In the upper part of the series occur also the southern rural States, such as Louisiana, North Carolina, Virginia, Mississippi, Texas, and Florida. These are all States with a high proportion of Negroes in the population, and it has been shown by the statistics of the report of the Surgeon General for 1918 that Negroes are twice as liable to epilepsy in the Army as whites. However, it must be admitted that there was no great difference in the amount of epilepsy detected at physical examination between the black belt (Group 4) and the agricultural area of the Southern States outside of the black belt (Group 3). A high rate for epilepsy is found also among the mountain whites (6.28) and in the native white agricultural regions of the North (6.66). This is far above the rate for the eastern manufacturing group (4.23). It appears, then, that epilepsy is a defect that was especially detected in recruits from the agricultural areas, both of the North and South, and it seems probable that this must be associated with the greater amount of inbreeding in rural districts, since it is well

known that inbreeding tends to increase the proportion of epilepsy in the population.

18. *Neurasthenia*.—This condition was recorded in 4,194 cases, of which 610 were from urban districts and 884 from rural, giving a ratio of 0.62 for the urban and 0.50 for the rural. The ratio of rural to urban is, hence, 0.81. In order to understand the greater proportion of neurasthenia in cities, there will be considered first the ratio of neurasthenia in the four large cities. Thus, the ratio for New York City is 0.70; for Philadelphia, 0.57; for Chicago, 0.92, and for Boston, 1.27. It is suggestive that Boston, which shows the highest rate for neurasthenia, shows also the highest rate for other nervous disorders, such as epilepsy, monoplegia, and, as we shall see later, for certain others. Although neurasthenia is less common in rural than urban districts, nevertheless the largest ratio of neurasthenia is found in the rural State of South Carolina, the second largest in North Carolina, and the third in Vermont, all rural States. However, the densely populated States of Massachusetts, Connecticut, New York, Illinois, and Delaware stand in the upper half of the series.

The reason for the large amount of neurasthenia in certain of the Southern States is because this is a defect that is especially apt to appear in the colored population. Thus, the ratio for the black belt of the South is 0.58 and for the corresponding agricultural areas occupied by whites it is only 0.49. The eastern manufacturing district shows a still higher ratio of 0.61 and, since this is more populous than the agricultural regions of the South, it helps to swell the urban rate. We reach the conclusion, therefore, that neurasthenia is especially a defect of the larger towns and cities. There is less of it in those rural areas occupied prevailingly by whites than in those occupied largely by colored people.

19. *Neurocirculatory asthenia, or disordered action of the heart*.—This very common condition was recorded in only 895 cases in the schedules examined for this report, being a ratio of 0.33 per thousand men. The smallness of the number is ascribed to the difficulty in detecting the condition by the methods employed in examination at mobilization. Of the cases reported, 0.33 per mille are from urban and 0.32 from rural districts. Thus there is no important difference in the ratio of this defect reported from men of urban and of rural origin. The ratios for the four large cities are usually less than those given for the urban districts in general; thus, for Boston the ratio is 0.05; for Chicago, 0.09; for Philadelphia, 0.01. On the other hand, New York City has more than the average from urban districts, namely, 0.44. The large ratio of neurocirculatory asthenia found in registrants of New York City is doubtless to be ascribed primarily to the relatively high quality of the medical examiners of registrants from this city, whether at local boards or at camp.

20. *Chorea*.—This condition comprises a variety of defects, such as the chorea of Sydenham, which affects young people between the ages of 5 to 15, prevailingly and only exceptionally after 20 years. This form of chorea is commoner among girls than boys, and is said to be rare among pure-blooded Negroes. It is commonly described as more frequent in the larger cities and among the poorer classes. In addition, there are the relatively uncommon chronic progressive choreas and the fibrillary and wavelike twitching, or so-called myoclonus multiplex. It is probably that in our statistics the cases of

Sydenham's chorea prevailed over the others. There were, however, only 593 cases recorded in the schedules, of which 0.18 per thousand are for registrants from urban districts and 0.23 per thousand from rural districts. The ratios from the four large cities are as follows: New York, 0.12; Chicago, 0.20; Boston, 0.25; Philadelphia, 0.31. These figures do not give strong support to the idea that chorea is chiefly an urban defect, since the rate in the largest city is only about one-half that for the rural population. However, Boston and Philadelphia slightly exceed the average for the rural population, while for the United States as a whole the incidence of chorea in rural districts is only about 30 per cent in excess of urban. Yet, in the different States the relation of rural and urban incidences of chorea vary greatly. This is in part, however, due to small numbers. Thus, in California the rural rate is two and one-half times the urban rate. In Minnesota the rural rate is about double the urban rate.

21. *Hysteria*.—This condition was noted in only 641 cases, or 0.23 per thousand of the men examined. Its rate of occurrence was higher in rural than in urban localities, as 0.26 is to 0.18. There was an excess of cases found in the cities of New York (0.25) and Philadelphia (0.27) over the average of urban districts. This, however, is not significant, being based on small numbers.

22. *Defective speech*.—This term includes both cases in which the defect is due to some congenital nerve weakness and also cases in which the organs of speech have been mutilated by traumatism. It was a common cause for rejection. There were 2,986 cases recorded throughout the United States, of which 2,769 were rejected. This defect proved to be somewhat commoner in rural than in urban districts in the proportion of 1.12 in the former to 1.02 in the latter. The four large cities give exactly the average for urban districts. The rate, however, is higher than the average urban rate in New York City (1.09), slightly less than Philadelphia (1.07), and below the average of urban districts in Boston (0.96) and Chicago (0.89). The relation between the incidence of the defects of this group in urban and rural districts differs considerably in the different States, and this difference is probably sometimes significant in view of the relatively large number of defects found in the States. Thus a relatively high proportion of rural defects over urban is found in Alabama, Florida (as 1.08 is to 0.21), Illinois, Indiana, Iowa, Maine, Michigan, Minnesota, Missouri, New Jersey, Ohio, Oregon, Washington, and Wisconsin. This list includes both Northern and Southern States, and especially the States of the Northwest. On the other hand, there is a marked excess of the urban ratio in the States of Kentucky, Rhode Island, South Carolina, Texas, and West Virginia, including, therefore, certain cities and the most densely populated of the Northern States. The reason for the excess of this defect in urban South Carolina is apparently because there is a much smaller proportion of colored persons in the cities of South Carolina than in the rural districts of South Carolina. Defective speech is relatively uncommon in Negroes. Their presence in large numbers tends to reduce the ratio, and it is more reduced in rural districts of South Carolina than in urban districts.

23. *Deaf-mutism*.—This condition, the result of congenital deafness, was found altogether in 2,409 cases, being 0.87 per thousand men. This defect constituted 1.57 per thousand of defects found.



Only about 40.7 per cent of the cases were of rural origin, which give the ratio of 0.81 rural to 100 urban. We see that it is prevailingly an urban defect which may, perhaps, be due to the circumstances that a certain number of deaf-mutes come to the city for training and find living conditions better there than in the country. The rates for the four large cities combined is 1.08, which confirms the foregoing conclusion.

Comparing different States we find that the ratio of urban to rural varies a good deal. Thus, considering only the more populous States, we find in California a relation of 0.78 urban to 0.47 rural. In Connecticut, 1.32 urban to 0.58 rural; Georgia, 0.93 urban to 0.37 rural; Illinois, 1.10 urban to 1.06 rural; Indiana, 2.05 urban to 0.75 rural; Kentucky, 1.44 urban to 1.08 rural; Louisiana, 2.01 urban to 1.03 rural; Maryland, 0.92 urban to 0.72 rural; Massachusetts, 1.11 urban to 1.02 rural; Michigan, 0.84 urban to 0.59 rural; Minnesota, 0.91 urban to 0.90 rural; Missouri, 1.16 urban to 0.91 rural; New Jersey, 1.13 urban to 0.86 rural; New York, 1.20 urban to 0.98 rural; Ohio, 1.03 urban to 0.62 rural; Pennsylvania, 0.72 urban to 0.71 rural; Tennessee, 1.08 urban to 0.99 rural; Wisconsin, 0.89 urban to 0.86 rural. Thus it appears that in some of the Northern States the relation between rural and urban approaches equality, whereas in the South the rural rates are usually much the smaller. This is perhaps because the colored people occupy the rural districts to a greater extent than the urban districts and congenital deaf-mutism is apparently relatively uncommon in Negroes. This is indicated by the fact that the deaf-mute rate is only 1.08 for the group of agricultural Negro sections of the South, whereas it is 1.99 for southern sections occupied prevailingly by native whites. The rate rises to 2.20 in northern agricultural sections, with few persons of Negro origin.

24. *Deafness*.—This condition was recorded in 3,363 registrants examined, or 1.22 per thousand men. The defect constitutes 2.19 per thousand defects found. The urban rate is 1.19 and the rural rate 1.24. This gives a ratio of rural to urban of 1.04. This defect is consequently slightly more frequently found in rural than in urban regions. The rate for large cities is 1.24—the same as in rural districts. In detail the rates are: For Philadelphia, 1.72; Boston, 1.42; New York City, 1.07; Chicago, 1.22. This seems to indicate that the deaf have remained behind in the eastern cities and relatively few of them have migrated into Chicago as a representative of the western cities. For deafness in the more populous States the ratio of rural rate to urban is shown in the accompanying table.

State.	Rural.	Urban.	Ratio (R/U).
California.....	1.38	1.16	1.19
Illinois.....	.74	1.15	.64
Kentucky.....	2.39	1.82	1.31
Louisiana.....	.96	1.00	.96
Maine.....	2.44	6.66	.37
Massachusetts.....	1.25	1.56	.80
Minnesota.....	1.42	.58	2.46
Missouri.....	1.75	1.82	.96
New Jersey.....	1.48	1.40	1.06
New York.....	1.57	1.07	1.47
Ohio.....	1.89	1.34	1.41
Pennsylvania.....	1.33	1.40	.95
Texas.....	1.43	.81	1.83
Virginia.....	1.91	1.89	1.02
Wisconsin.....	1.28	1.73	.74

An examination of this table shows that the rates for both rural and urban are low in Louisiana and also in the urban districts of Texas. The low rates for defects are characteristic of most of the Southern States, apparently owing to the fact that the Negroes, which constitute so large a proportion of the population in those States, show relatively little deafness. On the other hand, the State of Maine has a high rate for both urban and rural, the urban rate of 6.7 being one of the largest urban rates. The rate, however, depends on rather small numbers (only 12). The urban rate also is exceedingly high (2.4).

25. *Mental deficiency.*—Of this defect there were noted 39,787, or 14.45 per thousand men examined. Mental deficiency, indeed, proved to be one of the most important defects, amounting to 26 per thousand of the defects noted. The ratio of mental deficiency in urban districts is 8.77 and in rural districts 17.59. This gives again the familiar result that mental deficiency is almost exactly twice as common in rural as in urban districts.

For large cities the rate is 8.28, or slightly less than that for urban districts in general. In the four large cities we find the total rate for mental deficiency to be: For Chicago, 8.05; Boston, 8.76; Philadelphia, 8.24; New York City, 8.34. It is perhaps, rather surprising to find the defect rate higher in Boston than in the other cities. The result is possibly due to the greater discrimination or higher ideals of the examiners of registrants from Boston.

The relative amount of mental deficiency in urban and rural districts varied between the States. Thus, in some of the Southern States we have a relation as follows: Alabama, 21.1 rural to 5.81 urban, or a ratio of nearly 4 to 1; Arkansas, 16.85 rural to 4.8 urban; Florida, 15.7 rural to 6.2 urban, the rural rate being two and one-half times the urban; Georgia, 17.1 rural to 6.4 urban, the rural rate being a little less than three times the urban; Louisiana, 23.9 rural to 14.3 urban, the rural rate being little less than twice the urban; North Carolina, 27.6 rural to 3.5 urban, the rural rate being nearly eight times the urban. The relatively large proportion of rural mental deficiency in the Southern States is, of course, due to the fact that the Negro population is prevailingly rural.

The Northern States give quite different relations. Thus, the ratios of rural to urban are: For Connecticut, 14.0 to 11.7, respectively; Illinois, 14.1 to 8.0; Indiana, 15.8 to 12.2; Iowa, 19.1 to 12.0; Kansas, 12.0 to 11.6; Massachusetts, 15.4 to 10.3; Minnesota, 17.2 to 5.4; New Jersey, 11.0 to 8.6; Ohio, 21.6 to 8.1; New York, 18.2 to 8.8; Pennsylvania, 16.3 to 9.3; Rhode Island, 17.0 to 16.0. Thus in the Northern States the rate for mental deficiency is rarely twice as great in rural as in urban districts, and in some States, like Kansas and Rhode Island, there is nearly an equality between them. This indicates that in such States there has been no excessive selection of persons with especially high general intelligence by cities, but rather that many persons of inferior intelligence have come to work in the large towns. Thus, in Rhode Island it is noted that the rural population has an average defect rate, but that of the cities is exceptionally high.

The importance of the Negro element in the rural areas of the South is indicated by comparing the rates of group 4 (agricultural Negroes) and group 3 (agricultural native whites) of the South.

The rate in the first case is 20.1 and in the second 18.9, or nearly 50 per cent greater than that of the Nation as a whole, and nearly twice that of the eastern manufacturing group of the North (11.7). On the other hand, we may compare with the rural population of the South that of the group 21 of the North (chiefly agricultural), where the mental deficiency rate is 12.6.

26. *Errors of refraction.*—These include astigmatism, hyperopia, myopia, and defective vision (cause not stated). The total number of cases belonging to these four categories found in the United States is 90,663, giving a ratio of 32.92 per thousand men. The rate for the total urban population is 44.0 and for the rural 36.8. This gives a ratio of rural to urban of 0.84. The ratio for large cities is 58.89, which shows that eye defects increase in proportion with the size of the cities. The relation, however, is not perfect, for the four large cities give ratios of these eye defects as follows: Chicago, 38.0; Philadelphia, 42.0; New York City, 68.8; Boston, 73.6. The exceptionally high rate of errors of refraction in Boston is striking and corresponds with the popular conception of the large amount of eye defects in this city.

The relation between rural and urban eye defects varies in the different States. Thus, in Alabama the rates are 18.2 for rural and 18.6 for urban. In Florida the corresponding ratios are 23.4 and 21.4, respectively. In Georgia, 21.6 and 27.1; Louisiana, 22.1 and 29.7. Hence, in these Southern States there is not a great contrast between the relative frequency of errors of refraction in rural and urban sections. On the other hand, the contrast is striking in many of the Northern States. Thus, in New York State the rural rate is 39.0 and the urban rate is 62.1; in Pennsylvania the corresponding rates are 31.3 and 39.3; in Illinois, 23.5 to 45.8, respectively. On the other hand, in the densely populated State of Rhode Island the rural rate is a trifle greater than urban, as 0.69 is to 0.61. This is because the rural rate is exceptionally high owing to the fact that the whole State is densely populated and the rural population accordingly comprises many suburban districts.

The large amount of refractive errors of the eye in urban districts is not due solely to the conditions of life in those districts involving a large amount of clerical work and other close work required. It is in part due to the fact that certain races with a constitutional tendency toward myopia (and perhaps other errors of refraction) are gregarious and found especially in the larger cities. This is the reason for the high defect rate in New York City. The eastern manufacturing group of sections has a rate of 41.08 per thousand. The lowest rate is found in the agricultural Negro group, which is 19.95, which low rate influences the total rural rate and tends to reduce it so markedly below the urban rate. Now the high urban rate for defects of the eyes is only marked in the northern cities. The rate for New Orleans is only about 0.29 per thousand, a rate only slightly greater than that of the rural United States.

27. *Trachoma.*—This disease is not an extremely common one in the United States, since only 3,776 cases were recorded; giving a rate of 1.4 per 1,000 men examined. In point of total importance it falls rather low, constituting only 2.5 out of all defects noted. The rural rate for trachoma is 1.71 and the urban rate is



0.75. This gives the relation of rural to urban of 2.3 to 1, the largest of such ratios with one exception. Part of the reason for the low urban rate is the fact that it is relatively uncommon in large cities, in spite of the fact of its introduction into these large cities by immigrants from abroad. While the rate for New York City is 1.9 (a relatively high rate), that for Philadelphia is only 0.8; that for Boston, 0.5; and that for Chicago, 0.3. The small amount of trachoma found in registrants from the great cities, is, no doubt, largely due to the remediable care that is furnished by such cities.

As pointed out elsewhere, trachoma is chiefly found in a zone of States intermediate between the extreme Northern and Southern States in the eastern half of the Union, also in certain of the Western States. In the State of Kentucky, with a trachoma rate of 8, we find an urban rate of 9.3. The rate for West Virginia is 1.9 in rural districts and 3 in urban districts. One sees, then, that in the southern centers of distribution of trachoma the disease is quite as prevalent in town as in country, and in the North it is nearly confined to the cities, and presumably to the recent immigrants in them. In those Southern States in which trachoma is most common it is more abundant in the mountainous parts than in the plains. Thus, in Kentucky the mountain rate is 17.3 and that of the plains 4.8. This is, perhaps, not because there is anything in mountain topography which produces trachoma, but because the people of the mountains are farther removed from social remedial influences. Thus, the mountain whites show the highest trachoma rate of all groups of sections—5, being over three times as great as the trachoma rate for the whole United States. Then, in summary, trachoma is a great rural disease because it thrives in communities which do not take the necessary measures to repress it.

28. *Blindness in one eye*.—This is recorded in 14,879 cases, giving a rate for the whole country of 5.4. It is a defect of considerable moment and constitutes 9.7 per 1,000 of the defects found. This defect was found in rural communities to have a rate of 5.7 and in urban a rate of 5.0, which gives a ratio of rural to urban of 1.14.

Blindness in one eye is due to many causes, but often to causes which could have been prevented by early attention. The high rate in rural communities is probably to be explained as due to the relative lack of medical attention securable in such communities. The amount of blindness in one eye is not only low in the large cities but varies among them. Thus the rate for New York City is 4.1, for Chicago much higher (5.7), for Philadelphia 3.7, and for Boston 3.8—rates which (except for Chicago) are distinctly less than the urban rate for the country at large. In parts of the country far removed from medical attendance the rate runs strikingly higher, as among the mountain whites, where the rate is 6.7. This is, in part, probably due to trachoma. In the desert group of sections the rate is 8.1, much above the average rate for the whole country. On the other hand, the rate for the eastern manufacturing and commuting groups of sections runs low, at 4.6.

29. *Otitis media*.—Otitis media is one of the most frequent of diseases. There were 21,579 cases recorded, being 7.8 per 1,000 of the population examined. It constituted 14 per 1,000 of the defects found. The rate for rural districts is 5.6 and that for urban dis-

tricts 11.9, or more than twice the rural. The rate for the four selected cities is 17.43. The ratio of rural to urban incidence is 0.47, the lowest of such ratios with one exception. Of large cities especially studied, New York City has a rate of 22.07, the largest rate for any considerable locality. The rate for Philadelphia is 17.4, for Chicago 11.1, and for Boston 10.4. The great amount of otitis media in New York City is largely due to the presence there of a population apparently constitutionally liable to this disease, or possibly subjected to sanitary conditions favorable to its development.

The proportion of rural to urban for otitis media differs with the different States, depending largely upon the size of the cities included in the urban districts. In the Southern States the rates are low and the contrast between urban and rural is usually not great. Thus for Alabama the rate for otitis media in rural districts is 3.0 and in urban 2.2. In Georgia the corresponding rates are 1.8 to 3.6; Florida, 2.1 to 3.2; Louisiana, 2.6 to 7.5; Arkansas, 3.5 to 2.1. In contrast to this is the relation of urban to rural in the more northern States. Thus, in New York the rate for rural is 7.7 and for urban 19.2; in Pennsylvania, 8.3 and 13.9, respectively; in Illinois, 6.1 and 10.4, respectively. One notes that the great contrast is in the State of New York, and this is due to the exaggerated rate in the urban districts, which, in turn, is chiefly due to the bad conditions found in New York City as observed at Camp Upton. The smaller cities have mostly rates that are relatively less than those of the largest cities. In the case of New Orleans the rate is 7.4, St. Louis 11.7, Twin Cities of Minnesota 6.06, Milwaukee 14.8, and Detroit 11.7. Thus we see that it is especially the northern cities, the centers of recent immigration, rather than the southern cities that show the high urban rate of otitis media. The relatively low rate for the southern cities is in part due to the presence of negroes there, since the rate for otitis media in the Negro agricultural group of sections is low, 2.9. However, the South, in general, is comparatively free from otitis media, since the native whites of the agricultural regions of the South have a ratio of 4.9 in contrast with the native white agricultural region of the North of 6.9.

30. *Defective hearing.*—In this category were placed 15,076 cases, being 5.5 per 1,000 of the men examined. This condition was one of great importance in the draft, constituting 9.9 per 1,000 of the defects found, or nearly 1 per cent of all. The rate for defective hearing is 5.3 in rural districts and 5.8 in urban districts. Thus, defective hearing shows a clear but not extremely great excess in town over country. A part of this excess is, no doubt, due to greater incidence of otitis media in large cities, since this is a common cause of defective hearing.

We find, indeed, that defective hearing shows a rather high rate in New York City (a center of otitis media), namely, 5.9. In Chicago the rate is still higher (6.3); in Boston, 6.5; while in Philadelphia it is only 3.8. The high rate of defective hearing for Boston, which has much less otitis media than some of the other large cities, indicates that there are operating here other important causes of defective hearing. It will be of interest to compare the incidence of defective hearing, however caused, in some of the more southern and more northern cities besides those already given. Thus the rate of defective hearing for New Orleans is 11.5 per thousand.

This, it will be noted, is an extraordinarily high rate. For the District of Columbia the ratio is 5.11; for St. Louis, 5; for Detroit, 5.2; for Milwaukee, 5.3; for the Twin Cities of Minnesota, 3.8. Thus the cities of intermediate size with a relatively small proportion of recent immigrants from eastern and southeastern Europe have a relatively low rate for defective hearing. The rate for New Orleans is exceptionally high, and this can not be due to Negro element in that city, since this race is characterized by a relatively small amount of defective hearing. Thus Group 4 (the Negro agricultural section) has a defect rate of only 4.3, as compared with the eastern manufacturing group with a rate of 6.8. It must be concluded, therefore, that there are especial factors at work producing defective hearing in New Orleans, as also in Boston. Such factors are probably in part constitutional, since it is well known that certain forms of defective hearing have a hereditary basis. It is, perhaps, due to French blood, as there are thousands of French Canadian stock in Boston and many thousands of French descent in New Orleans, and the French Canadian stock (section group No. 18) has the highest proportion of defective hearing (9 per 1,000) of all sections.

31. *Hypertrophic tonsillitis*.—This condition was recorded in 63,585 cases, or 23.1 per thousand of men examined. It was one of the numerically most important defects, constituting 41.5 per thousand defects found, or approximately 4 per cent. The rate of hypertrophic tonsillitis is 22.9 for rural districts and 23.5 for urban districts. The difference in incidence of this condition in the two kinds of districts is therefore slight, giving a ratio of rural to urban of 0.97. Hypertrophic tonsils were found still more commonly in the large cities, at a rate of 23.9 per thousand men examined. This persistent slight excess of hypertrophic tonsillitis in city registrants may well be due to the greater care exercised in recording defects by the better trained officials of cities and at camps that drew from the large cities. It is, however, commonly believed that the dust of large cities and the overheating of city houses are contributory causes of tonsillitis.

Comparing the four large cities in detail, we find a defect rate for New York City of 25.4; for Philadelphia, 28.8; for Boston, 29.8; for Chicago, 17.11. One notes the contrast in the incidence of hypertrophic tonsillitis between the eastern seaboard cities on one hand and Chicago on the other. Also in the mountain cities, which pride themselves on their fine climate, the rate for hypertrophic tonsillitis is nearly 15. In the case of Detroit the rate is 9.4; in St. Louis the rate is, however, high, 19.2; in Denver, the section with the largest tuberculosis rate, the ratio for hypertrophic tonsillitis rises to 27.1—an extraordinarily high rate, which only is exceeded by the population in the mountains west of Denver, where the rate is 38.8, or nearly 4 per cent of the men examined. Thus while on the one hand there, perhaps, may be some relation between climate and hypertrophic tonsils, and although the cities of the eastern seaboard tend to a high ratio in this condition, still it seems to be even more closely associated with other conditions, so that it is found more abundantly in the high-lying city of Denver than even along the Atlantic seaboard; Arizona has a relatively low rate of hypertrophic tonsillitis, namely, 18.9, in striking contrast with the rate found in



Arkansas, of 43.5, and in West Virginia, of 46.1. Evidently the factors which make for a high rate of hypertrophic tonsillitis are numerous and varied.

32. *Valvular diseases of the heart.*—Valvular diseases of the heart were of several types, those most commonly found being mitral insufficiency, 29,610 cases recorded; valvular lesions, unclassified, 44,813 cases recorded; and mitral stenosis, 7,469 cases recorded. It is futile to discuss valvular defects separately, since it appears that a majority of them were placed in "valvular lesions, unclassified." The total number of valvular diseases of the heart recorded was 88,392, being a rate of about 32.1 per thousand of the men examined. The rural rate is 28.82 and the urban rate 39.49. The ratio of rural to urban is, therefore, about 0.71. Valvular diseases of the heart are, therefore, among the markedly urban conditions. The rate for large cities is still higher than the rate for urban districts in general. Thus for New York City the rate is about 0.46 per thousand men examined. The rate for most rural groups is less than for the cities. Thus the agricultural native white population of the North has a rate of 29.9 and that of the South 24.6. The Negro group of the South has a rate of 29.1—a little larger than the native white group of the South, possibly because of the large amount of venereal diseases in the Negro group, which is responsible for much valvular disease.

33. *Varicose veins and varicocele.*—These conditions, which are probably related, were found in a total of 20,353 cases, or 7.39 per thousand men examined, being 4.1 for varicose veins and 3.3 for varicocele. The rural rate for the sum of the two is 7.3 and the urban rate is 7.6. Thus, the condition is commoner in cities, and the ratio of rural to urban is 0.96. However, the ratio rural to urban is for varicose veins 0.90, and for varicocele 1.03. There is, therefore, a marked difference in the incidence of these defects in urban and rural districts. In the case of New York City the sum of these two defects gives a rate of 5.8 per thousand; Philadelphia, 5.4; Boston, 8.4; Chicago, 8.6. The reason for the high rate in Chicago is doubtless because of the taller races in the Northwest, since there is plenty of evidence that varicose veins are associated with taller stature. Accordingly we find a rate for varicose veins in section 3 of North Dakota of 5.3 per thousand, in section 2 of Minnesota of 4.5 per thousand.

34. *Tachycardia.*—This condition was recorded in 12,251 cases, giving a ratio of 4.5 per thousand men examined. The rural rate is 4.2 and the urban 5. The ratio of rural to urban incidence is 0.84. In the four large cities the rate is only 4.6, indicating that the rate of tachycardia is not correlated with the size of the cities. We find, indeed, the rate for Chicago to be higher—5.4; that for Boston to be lower—2.2, while the rates for Philadelphia and New York City are intermediate—4.3, and 4.6, respectively.

In view of the fact that exophthalmic goiter is apt to induce tachycardia, the high rate in Chicago is probably associated with the relatively large amount of goiter there, and the low rate in Boston with the exceptionally small amount of goiter found there. The amount of goiter in New York City and Philadelphia is intermediate between that of Chicago and Boston. As we have already

seen, exophthalmic goiter is prevailingly an urban disease; the ratio of rural to urban being 0.74. Simple goiter is only very slightly in excess in urban districts, the ratio of rural to urban being 0.99. We see, however, that the amount of tachycardia runs then parallel with the amount of goiter, particularly exophthalmic goiter. If we examine the ratio of urban to rural tachycardia in the States in which it is commonest, we shall find that this runs again parallel to the ratio of urban to rural for exophthalmic goiter. Thus for the State of Washington for tachycardia the rural rate is to urban as 9.3 is to 4.8, and correspondingly for exophthalmic goiter the rural rate is to the urban as 12.2 is to 4.7. In Wisconsin for tachycardia the rural rate is to the urban as 6.6 is to 6.7, and for exophthalmic goiter the rural rate is to the urban as 6.7 is to 8.5. In Minnesota, on the other hand, for tachycardia the rural rate is to the urban rate as 4.9 is to 2.2, while for exophthalmic goiter the rural rate is to the urban as 3.3 is to 3.5, the relation of the rate in this case being reversed.

In the Southern States where there is very little exophthalmic goiter there was still found considerable tachycardia, and this was found more commonly in rural than in urban districts, as appears in the States of Florida, Georgia, North Carolina, but not in Virginia, South Carolina, Alabama, and Louisiana. Possibly the excess of tachycardia found in the rural districts of the States with the largest proportion of Negroes is associated with the fact that more tachycardia is found in the agricultural Negro group (4.8) than in the white agricultural group of the South (3.9).

35. *Asthma*.—This condition was recorded 6,759 times, giving a rate of 2.5 for the whole population examined. The rural rate is 2.6 and the urban rate 2.2, giving a ratio of rural to urban of 1.21. It appears, then, that asthma is a prevailingly rural disease. The rate for the four large cities is 1.7 and the rate seems to be roughly proportionate to the size of the cities. Thus, of the four large cities it is highest in Boston (2.4), low in Chicago and Philadelphia (1.8), and still lower in New York City (1.7).

It is to be noted, however, that in some of the States the urban rate is in excess of the rural. Such States are Colorado (5.2 rural to 8.3 urban), Florida (3.3 rural to 3.9 urban), Kentucky (1.7 rural to 2.1 urban), Louisiana (3.6 rural to 4.2 urban), Nebraska (1.5 rural to 2.5 urban), Oregon (3 rural to 4.3 urban), South Carolina (2.9 rural to 4.8 urban), Texas (2.3 rural to 2.8 urban), Utah (1.3 rural to 2.3 urban), Virginia (2.7 rural to 3.3 urban). It is to be noted that many of these States that show an excess of urban asthma are Southern States.

36. *Defective and deficient teeth*.—This condition was recorded in 87,131 cases, giving a rate of 13.5 per thousand. This was, indeed, numerically, one of the most important groups of defects recorded, constituting about 24 per thousand defects. The rural rate is 12.5 and the urban 15.4. This gives a ratio of rural to urban of 0.81, indicating either a marked superiority in the teeth of registrants from rural districts or else a marked inferiority in recording tooth defects in them. The average of the four large cities gives a rate of 14.8, somewhat lower than the urban in general. The rates vary a good deal in the four cities involved, being 12.1 in the case of Philadelphia, 12.9 in the case of Chicago, 14.3 in the case of New York City, and

32.2 in the case of Boston. From these figures the outstanding fact is the large proportion of defects found in registrants from Boston. In this respect, however, Boston is merely representative of New England. In Massachusetts we find, indeed, a rate of 53.4 for section 3 (the Cape Cod section), and in Vermont the whole State gives a rate of 47.5. That this large rate in New England is not due solely to the ideals of the examiners at Camp Devens is shown by the fact that we do not find those sections of New York State which were tributary to Camp Devens giving a larger percentage of tooth defects than at least one of the sections tributary to Camp Dix. Thus, section 7 (tributary to Camp Dix) gives a rate of 35.9 per 1,000 and section 8 and section 3 (tributary to Camp Devens) give rates of 26.2 and 31.2, respectively. Rather remarkably, section 2, which includes New York City and vicinity, gives a rate of 14.3. We must conclude that there is a constitutional difference between the people of New England and most other parts of the United States in nonresistance to tooth decay, and this inferiority of the teeth shows itself in a large city like Boston despite the opportunities afforded for dental repair.

Although defective teeth are much less common in rural than urban districts in the United States as a whole, this relation of rural to urban does not hold for the following States, in which the rural rate is larger than the urban: Alabama, 8.9 to 6.8; Florida, 18.4 to 12.6; Georgia, 14.9 to 13.2; Kansas, 3.2 to 2.4; Maryland, 13.4 to 10.4; Massachusetts, 38.2 to 36.5; New Jersey, 30.2 to 27.6; New York, 28.9 to 17.5; Oregon, 18.4 to 11.4; Pennsylvania, 13.6 to 12.6; South Carolina, 13.2 to 7.9; Washington, 16.9 to 13.2; West Virginia, 8.3 to 7.9. The greatest disproportion between rural and urban is seen in New York State which is due to the remarkably low rate for New York City. The low rate for that city is, as already suggested in this report, probably due to the presence in that city of races especially immune to tooth caries. Certain of the Southern States (Georgia, Florida, and South Carolina) show an absolutely high rural rate for defective teeth. We see that in most of these States with an excess of defective teeth in the rural population the ratios run rather high for the entire State.

37. *Hernia and enlarged inguinal rings.*—Hernia was recorded in 57,372 men and enlarged inguinal rings in 52,292 men. In the case of hernia, the rate is 20.8 per 1,000 men examined. The rural rate is 21.0 and the urban 20.6. Hence, for hernia there is a slight excess in the rural districts. Enlarged inguinal rings occurred in rural districts at a rate of 17.8 and in urban districts at a rate of 21.1. Thus, there was a markedly higher proportion of enlarged inguinal rings noted in the urban than in the rural population.

For the four large cities the rate of hernia is 18.5 and for enlarged inguinal rings 20.0. If we consider the two conditions together, we get a total ratio for the United States of 39.8; for rural regions of 38.8, and for urban of 41.7. On the whole, then, the defect has a greater incidence in the cities. The ratio of rural to urban is 0.84, for enlarged inguinal rings, 1.02 for hernia, or about 0.94 for the two conditions together. Considering the occurrence of hernia in the four large cities we find its rate to be greatest in Chicago (19.7); it is in Philadelphia, 19.3; New York City, 17.6; and Boston, 17.1. For enlarged inguinal rings, on the other hand, the rates are for Chi-



cago 14.3, Philadelphia, 18.7, New York City 22.0, and Boston 32.7. Thus, there is an inverse ratio between the amount of hernia and enlarged inguinal rings recorded, due to the fact that in different cities the dividing line between these two intergrading conditions are drawn at different levels. Since enlarged inguinal rings are in excess in urban districts it suggests that the medical examiners for these districts were more inclined to record the condition "enlarged inguinal rings." It is, on the other hand, possible that in rural districts a great many enlarged inguinal rings became frank hernia, due to the great stress of rural, especially farm, life. Since the ratios of urban and of rural are so similar, a detailed analysis or draft by different States would hardly be worth examining. The following States, however, may be pointed out as showing a great excess of hernia in rural districts: Colorado, 22.9 to 19.9; New York, 20.4 to 18.3; Washington, 23.3 to 19.3; Wisconsin, 23.6 to 19.3. Of these four States, Colorado is a mountainous and mining State, in which it is to be expected that the rural population is subjected to exceptional stress. In New York State the difference is due to the relatively small amount of hernia in the urban population, probably because of the large proportion of small races in New York City. The difference between urban and rural in Washington and Wisconsin is due to excess of rural hernia in these States, probably due to excess of the tall Scandinavian race in these States. Such tall races are especially subject to hernia. Thus, the rate for hernia among the Scandinavians is 22.5 as opposed to the French Canadian (group 19) 18.8; Russians (group 16), 21.6; and German-Austrians (group 21), 20.15.

38. *Malunion of fracture of upper extremity, and malunion of fracture of lower extremity.*—These two conditions were found in 4,220 and 6,953 cases, respectively. Thus, malunion of fracture of lower extremity was over 65 per cent commoner than that of the upper extremity. This, perhaps, represents the relative frequency of fracture in the two extremities. The rate for the upper extremity is 1.5 per thousand and for the lower extremity 2.5. Malunion of fracture of upper extremity has a rural rate of 1.6 and an urban rate of 1.5, while malunion of fracture of lower extremity has an urban rate of 2.7 and a rural rate of 2.2. In both cases the defect is commoner in rural than in urban districts, more so in the lower extremity than in the upper. The ratio of rural to urban districts is 1.05 in the case of upper extremity and 1.24 in the case of lower extremity. These similar fractures constitute an important part of all defects found, making together 73 out of every thousand defects. They were even less common in large cities than in the urban districts in general, the rates being 1.4 for the upper extremity and 1.8 for the lower. The rates for the upper extremity are: For Chicago, 1.2; New York, 1.4; Philadelphia, 1.5; Boston, 1.7. For the lower extremity the rates are: Philadelphia and New York City, 1.8; Chicago, 2; Boston, 2.8. Thus, it appears that for the four cities the hazard to limb is greatest in Boston and relatively slight in New York City. Such a conclusion is, however, not entirely justified, since malunion of fracture depends not only upon the frequency of fracture, but also upon the availability of proper surgical attention after a fracture.

The small amount of malunion of fracture in large cities may be regarded as an index to the facilities for securing proper surgical

attention. The large rural rate is likewise probably due more to improper surgical facilities in rural districts than to greater liability to accident in them. A comparison of urban and rural rates in different States will throw light upon this subject. In the following table the States named in the left-hand column have an urban rate for the upper extremity in excess of the rural. Those in the right-hand column have the urban rate for the lower extremity in excess of the rural.

State.	Rural.	Urban.	State.	Rural.	Urban.
Colorado.....	1.5	1.6	Connecticut.....	1.9	3.0
Connecticut.....	1.0	1.5	Kansas.....	2.1	2.4
Kansas.....	1.9	2.4	Maryland.....	1.4	1.8
Maryland.....	.9	1.1	Michigan.....	2.5	3.1
Massachusetts.....	1.5	1.8	Missouri.....	2.3	2.5
Michigan.....	1.7	1.8	Tennessee.....	2.7	3.3
Minnesota.....	1.1	1.8	Virginia.....	2.9	3.3
Nebraska.....	1.4	2.8			
North Carolina.....	1.9	2.9			
Rhode Island.....	1.1	1.4			
South Carolina.....	1.2	1.6			
Tennessee.....	1.6	1.8			
Texas.....	1.5	1.6			
Utah.....	2.6	3.0			
Virginia.....	2.2	2.8			

The States in which the urban ratio for the upper extremity is in excess were in part characterized by a low rural rate and in part by a high urban rate. Thus, in the case of Connecticut the rural rate is remarkably low (1.0) and the same is true of Maryland, Minnesota, Rhode Island, and South Carolina. In the case of Connecticut and Rhode Island we can see that since the States are largely urban few persons may go without proper surgical attention. In some of these States at least the cities are few and of small size and hence there is greater difficulty in securing proper surgical treatment in fracture of bones. In these States, then, we see the urban rate becomes abnormally high, higher than the rural rate; indicating that on the whole accidents to the arms are probably more apt to occur under conditions of city life than of rural life. In the case of lower extremity, the States with excess in urban districts show mostly a high incidence rate. These are also largely rural States like Michigan, Minnesota, Tennessee, and Virginia, and they suggest also that, as with upper extremities so with lower extremities—accidents are more apt to occur in the cities than in the country, but malunion is found more frequently in rural districts because of limited opportunity for surgical care. The same story is told by the sections or groups, for the commuter group (6) shows the lowest rate of malunion of fracture, and of the rural groups, that of agricultural negroes shows the highest. The highest rate of all the groups comes from the sparsely settled areas even more than from more densely settled areas because in the sparsely settled areas proper surgical attendance is difficult to secure.

39. *Shortening of lower extremity.*—This condition was found in 8,901 men, being 3.2 per 1,000 men examined. The defect constituted 5.8 per 1,000 defects found. The urban and rural rates are practically the same. The rate for the four large cities is 3.4 per 1,000 men.

Though the rate is thus nearly the same for urban and rural districts in the United States as a whole, yet this relation does not hold

in all States. In the following States the rate is markedly in excess in the urban districts: Alabama, California, Connecticut, Illinois, Indiana, Iowa, Kentucky, Maine, Michigan, Missouri, Nebraska, Utah and West Virginia. On the other hand, the following States have a marked excess in rural districts: Colorado, Delaware, Florida, Georgia, Massachusetts, Montana, New Jersey, Ohio, Oklahoma, Oregon, Rhode Island, Tennessee, Washington, and Wisconsin. In comparing these lists it must be remembered that States which, like Florida, Nebraska, Oklahoma, and Montana, have a very small urban population, a small accidental variation may throw the State into one or the other category, just on account of the small numbers of persons examined from the urban district. Aside from these States, it is noted that an excess of shortening of the lower extremity in rural districts is found in such southern States as Georgia and Tennessee. This may be associated with the mountain life on the one hand, and the relatively small population in the cities on the other. An excess of urban shortening is most marked in the State of Maine, a lumber State where many accidents to the legs are apt to occur which render the victim incapable of further work in the woods and require him to find occupation in the cities. A similar hypothesis may be proposed for the excess of shortening of leg in the urban dwellers in the States of Michigan, Illinois, Indiana, and Connecticut. Or it may be that the excess is due to industrial or railroad accidents in these densely populated States.

40. *Loss of whole or part of lower extremity.*—There were 8,796 men found with this defect, constituting 3.2 per 1,000 of the population examined, or practically the same as were found with a shortened lower extremity. Of this defect the rural rate is 2.9 and the urban 3.7. This gives a ratio of rural to urban of 0.79. This defect, therefore, is one of these found with a markedly higher degree in cities than in country districts. The rate for the four large cities is 3, which is less than the average of urban districts; hardly greater than the ratio for rural districts.

The following States show an excess in the rural ratio for this defect: Colorado (3.2 rural; 2.8 urban); Montana (1.7 rural; 1.3 urban); New York (2.9 rural; 2.7 urban); Ohio (5.1 rural; 4.3 urban); Pennsylvania (5.7 rural; 4.6 urban); and Washington (4.5 rural; 3.6 urban). This group of States includes the mining States of Colorado, Ohio, Montana, and Pennsylvania<sup>1</sup> and the great railroad States of New York, Ohio, and Pennsylvania. The rural excess of loss of extremity indicates that the accidents were associated with the mining districts or the railroads of those States. In contrast will be considered those States in which the urban rate is twice or more than that of the rural districts. Such a condition is found in Arkansas (2.1 to 4.3), Delaware (1.5 to 3.6), Indiana (2.7 to 6.3), Iowa (2.4 to 5.7), Kansas (1.8 to 6.3), Kentucky (3.2 to 7.8), Maine (1.6 to 3.3), Missouri (2.1 to 4.7), and of Nebraska (2.5 to 5.1). These States are, except Delaware and Indiana, strongly rural States

<sup>1</sup> The U. S. census mortality statistics for 1916 gives for Colorado a death rate (per 100,000 population) by accidents in mines of 2.5 in cities and 17 in rural districts and for traumatism by railroad accidents of 7 and 8, respectively. For Ohio, accidents in mines of 0.7 in cities and 3.4 in rural districts. For Montana, accidents in mines 22 in cities and 20 in rural districts (but in our statistics all "cities" except Butte are listed as "rural"); Pennsylvania accidents in mines 8 in cities and 16.6 in rural districts; also railroad accidents are less common in cities than rural districts as 21:15. In New York State railroad accidents in urban were to those in rural districts as 5:18.



and, excepting Maine, are not marked by rural occupations especially hazardous of limb. Apparently in them the rural population is either better preserved than the urban from railroad accidents and perhaps also selection of the part of the larger cities is less rigid so that more of those injured in rural occupations drift into the cities, causing an excess in those States.<sup>2</sup>

41. *Upper extremity, loss of whole or part of.*—The loss of one or both arms in whole or part has a social and economic importance even greater than the loss of the leg, because there is a much larger number of occupations which require the effective use of the arms than of the legs. The loss of the right arm is of greater economic significance than that of the left arm, but no distinction of the arms is made in our statistics.

In the whole United States there were recorded 5,326 cases of greater or less loss of the upper extremities. This is 1.9 per 1,000 of the men examined. This defect was thus a serious one, and constituted 3.5 per 1,000 of the defects noted. The rate of occurrence of this defect from rural districts is 2; from urban districts 1.8. Thus, recruits from the country are more apt to show this defect than those from the city in the ratio of 1.1 rural to 1 urban. For the four large cities the rate is markedly less than for urban districts in general, namely 1.4, and the relation between the size of the city and the rate of the defect is nearly an inverse ratio. Thus in Boston it is 1.8; for Chicago and Philadelphia each 1.7, and for New York City 1.4. Comparing the relative incidence in rural and urban districts of this defect, rural rate in excess over urban rate due to an abnormally high rural rate is seen in the States of Louisiana (rural 3, urban 2.3), Pennsylvania (rural 2.9, urban 2.2), Ohio (rural 2.5, urban 2), Wisconsin (rural 2.5, urban 1.7). In the following States the excessive rural rate is accompanied by a low urban rate: Washington (rural 3.8, urban 1.2), and Maryland (rural 2.1, urban 1.1), New York (rural 1.9, urban 1.2).

In considering the above list it will be noted that in some cases the excess of rural over urban is due to the fact that the State contains cities of large size and therefore with a low urban rate. This is true of New York State, with the city of New York, whose rate is 1.4; Illinois, including Chicago, whose rate is 1.7; Pennsylvania, including Philadelphia, whose rate is 1.7; Maryland, including Baltimore, whose rate is 1.1; Wisconsin, including Milwaukee, whose rate is approximately 1.4. In addition, the States of Washington and Louisiana are seen to have an exceedingly high rural rate (3.8 and 3.0, respectively), and this requires a special explanation. This explanation is doubtless to be found in the fact that the occupation of the rural inhabitants of the States of Washington and Louisiana is one which is extra hazardous to the upper extremities. What this occupation is is indicated by the Census of Manufactures, U. S. Census Bureau, 1914. In the section Washington, page 5, it is stated: "For the past two censuses Washington has led all other States (in the lumber industry). \* \* \* This industry employed 56.7 per cent

<sup>2</sup> The U. S. census mortality statistics for 1916 gives for Indiana a death rate following railroad accidents and other traumatism by crushes of 40 for cities and 24 for urban districts; for Kansas 21 for cities and 17 for rural districts; for Kentucky 23 for cities and 11 for rural districts; for Maine 23 for cities and 14 for rural districts, for Missouri of 31 for cities and 14 for rural districts.

of the total wage earners. \* \* \* This industry embraces logging operations, sawmills, planing mills, and factories engaged in the manufacture of wooden packing boxes," etc. Similarly, in the Census of Manufactures, 1914, section Louisiana, page 5, it is stated: "The remarkable growth of the lumber industry (sawmills, planing mills, and wooden box factories) in the State during the decade 1904-1914 is shown by the increase of 73.7 per cent in value of products and 59.3 per cent in average number of wage earners. In value of products in this industry Louisiana ranked second in importance among the States in 1914 as against third in 1909." We see, then, that the extra hazardous occupation of the rural districts in Washington and Louisiana is sawmills and planing mills, and this accords with popular experience. The following States show an excess of urban rate for loss of upper extremities over rural: North Carolina (rural, 2.5; urban, 5.8, the highest urban rate); South Carolina (rural, 2.3; urban, 3.2); in Virginia (rural, 2.2; urban, 3.4).

In these three States the rural rate is not far above the average rate, and the excess of urban incidence of the defect is, therefore, due almost entirely to some extra hazard in these States of urban life. In the case of Iowa the excess of the urban rate over the rural is due both to the abnormally low rural rate and the abnormally high urban. The rates are, respectively: Rural, 1.3; urban, 3.0. The same is true, to a less degree, of the following States: Missouri (rural, 1.4; urban, 2.4); Connecticut (rural, 1.6; urban, 2.4). In the case of Kansas the rural rate is low and the urban rate is average, namely, rural, 1.5; urban, 2.0. The reason for the relatively high urban rates in North Carolina, South Carolina, and Virginia must be due to some extra hazard to the arms in urban occupations of these States. What this extra hazard is is suggested by the United States Census of Manufactures of 1914. The chapter for South Carolina, page 4, states: "The manufacture of cotton goods is the most important industry of the State. In 1914 it gave employment to 66.4 per cent of the wage earners. There are only two States—Massachusetts and North Carolina—that exceeded this State in value of cotton manufactures for 1914." In the case of South Carolina the only two cities involved in the urban rate are Charleston and Columbia, and the latter, at least, is one of the greatest cotton manufacturing sections of the country. Similarly, in North Carolina, the cities included in our statistics are Charlotte and Wilmington, and the former, at least, is another great center of cotton mills.<sup>3</sup> It seems probable that there is some hazard connected with the cotton industry which causes exceptionally high rate in the cities of North Carolina and South Carolina. It might be expected that Massachusetts would show a correspondingly high urban rate, but this is by no means as striking in Massachusetts as in the Southern States (rural rate, 1.4; urban rate, 1.9). This is probably because mill hands are better protected by law in Massachusetts than in North and South Carolina.

The reasons for the low rural rate for loss of upper extremity in the States of Iowa (1.3), Missouri (1.4), Kansas (1.5), Colorado (1.5), remain to be considered. It seems to be due to the absence

<sup>3</sup>According to U. S. census mortality statistics, 1916, the death rate in Virginia for traumas by machines is 3.0 in cities and 1.8 in rural districts. Also for traumas by crushes 21.6 and 14.3, respectively. In North Carolina it is 2.1 for cities and 1.6 for rural districts; traumas by crushes is 22.5 for cities and 8.8 for rural districts.

of extra hazard (like that of sawmills) in these States, and, indeed, these are, with the exception of Colorado, typical farming States. The low rate in Colorado, which is so largely a mining State, is rather surprising. In that section of Colorado which includes the center of the State, with many lead and silver mines, the rate is extremely low, less than 1 per 1,000 (but this figure depends on only one individual). Also for section 1 the rate is low (1.3). Apparently mining is not so hazardous to the upper extremities, merely, as are sawmills.

42. *Ankylosis of joint, bony and fibrous.*—These two defects are closely related. In the case of fibrous ankylosis, process consists largely of adhesions, while in the case of bony ankylosis the ossification of fibrous tissue and cartilages has taken place. Osseous ankylosis is easily diagnosticated, since flexion of the joint is entirely lost, whereas fibrous ankylosis is more difficult of diagnosis and it is apt to be confused with contractures of the joint which are due to quite different causes. Bony ankylosis of the joint is due to a variety of causes. The commonest is perhaps traumatism consisting either of a direct injury to or indirect traumatism due to a fracture near to a joint, especially where the processes of repair have been prolonged or imperfectly carried out. An important cause of ankylosis, usually fibrous, is venereal infection, either by the gonococcus producing gonorrheal arthritis or by syphilitic affection of joints. Tuberculosis affecting the ends of bones and the synovial may, if it becomes quiescent, result in ankylosis. Finally, ankylosis may be from arthritis, the result of focal infection. The two most frequent causes are doubtless traumatism and venereal infection. Since the diagnosis of fibrous ankylosis is not always to be distinguished from bony ankylosis and contractures on the other, it is not necessary to lay too much stress upon the two categories of fibrous and bony ankylosis of joint, and therefore they will be treated together.

In the whole United States there were recorded 10,278 cases of bony ankylosis of joint, giving a ratio of 3.7; also 8,316 cases of fibrous ankylosis of joint, giving a ratio of 3.0. Together, these constituted 12.1 per 1,000 of the defects found. The rate for rural districts is, for bony ankylosis, 3.9; for fibrous ankylosis, 3.2; whereas for urban districts the ratios are 3.5 and 2.8, respectively. Thus, fibrous ankylosis of the joint is less common than bony ankylosis, both in rural and urban districts.

The relation of rural to urban cases of bony ankylosis is 1.1 rural to 1.0 urban. In the case of fibrous ankylosis the ratio is almost exactly the same. Hence, in general, the ankylosis of the joint was found about 10 per cent more frequently in rural than in urban districts. The population of country districts is thus more apt to have stiff joints than the population of urban districts.

The four large cities give, on the average, rates for bony ankylosis of 2.8, and of fibrous ankylosis of 2.5. In these cities, Chicago leads with the rate of 3.3 for both bony and fibrous ankylosis. Boston follows, with a rate of 3.3 for bony and 2.6 for fibrous ankylosis. Philadelphia comes next, with a rate of 2.9 for both bony and fibrous ankylosis, and New York City last, with the rates of 2.5 and 1.8 for bony and fibrous ankylosis, respectively.



Though in the United States as a whole there is only a slight excess of rural over urban ankylosis, yet in certain States the rural rate is greatly in excess of the urban, and this is due to the fact either that the rural rate is exceptionally high or that the urban rate is exceptionally low, or, in a few cases, the urban and rural rates may both be high or low with, however, marked differences between them. Examples of a State with a high rural rate is Oregon: Bony, rural, 8.4; urban, 4.7; fibrous, rural, 4.4; urban, 3.1. In this State both the rural and urban rates are high, and the rural rate is nearly double the urban rate. If we consider Oregon by sections, we find that section 2, which includes all of the State excepting the more densely populated region in the northwest corner, has one of the highest rates of any section of the country for bony ankylosis, namely, 10.4. This high rate of the State of Oregon was not marked in examination at camp of the first 1,000,000 men. It appeared, however, in the statistics of total rejections for this defect, both by local boards and at camps, especially the former. Even in the more densely populated section of Oregon the rate is high, namely, 5.7. The high rate of rural ankylosis in Oregon can not be ascribed to a complication of venereal disease, as the venereal rate is low for this State. On the other hand, the rate for arthritis is high in Oregon, and this is a disease which often precedes ankylosis. Also, Oregon is among the highest States in its ratio of malunion of fractures. Hence it seems probable that the high rural rate of ankylosis in Oregon is associated with the rural hazards which have produced fractures and which have resulted in ankylosis. The high rate of fractures is probably associated with the lumber industry.

High rural rates for ankylosis are found also in the Southern States of Florida, Virginia, Louisiana, and Mississippi. The rate in Florida for bony ankylosis is in rural districts 5.9; in urban, 1.9. The urban rate, however, depends on only nine individuals, since there are only two small cities (Jacksonville and Tampa) included in the urban districts of this State. Light is thrown upon the high rate of ankylosis in rural Florida by the fact that the rate for section No. 2 of the State is 8.7. This section is the prevailingly colored section of Florida, with 58 per cent Negro population. Also, it is a section with a very high venereal rate, namely, about 119 per 1,000, or nearly 12 per cent. In this case it is clear that the high rural rate is due to venereal infection, especially among the Negroes. The high rural rates for ankylosis in Mississippi and Virginia are probably also due to venereal infection, which is high in these States. Mississippi stands third from the top and Virginia twelfth from the top. In the case of Louisiana the highest rural rate of any section is found in section 3 where the rate is 4.1 for bony ankylosis. This is a section containing prevailingly white population. It is one of the centers of the lumber industry, and it seems probable that in this case, as in Oregon, the high rate of ankylosis is partly due to traumatism. Other States with high rural rate for ankylosis are Maine, in which the rates for fibrous ankylosis are, rural 5.5, urban 1.1; Oklahoma, bony ankylosis, rural 5.2, urban 2.7. The rate for bony ankylosis reaches a maximum for Maine of 6.9 in section 3, and it is 5.6 in section 1. These are the great lumber sections of Maine. Similarly,

fibrous ankylosis is found in section 1 at the rate of 6.3 per 1,000, and section 3 at the rate of 4.5 per 1,000. It is probable that the high rate of ankylosis in rural Maine is associated, as in the case of Oregon, with the lumber industry. In Oklahoma the highest rate for bony ankylosis is found in section 1 (6.5), and this is the section of the State comprising the largest proportion of Indians and Negroes and the one which has a high venereal rate. In this case, therefore, it seems probable that the rural ankylosis is associated with that group of disease. On the other hand, a low urban rate for ankylosis is found in North Carolina, where the rate for fibrous ankylosis is, rural, 3.1; urban, 1.2. Also in Colorado the rate for fibrous ankylosis is, rural, 3.9; urban, 1.6. South Carolina, fibrous, rural, 2.6; urban, 1.8. The explanation for these low urban rates can not always be given. It is known that the section which includes Denver, Colo., has a low rate for fibrous ankylosis, namely, 2.1. The rate for the section of South Carolina which includes the city of Columbia, has a rate of 2.6. It is noteworthy that the low urban rate is always of fibrous ankylosis, the less marked type and the one that is most difficult to diagnose with certainty, also the one which is least commonly found.

Considering now the States in which there was an excess of urban ankylosis, we find that these fall into the groups in which an excess is due to a deficiency in the rural rate, to a great excess in the urban rate or to a difference associated with exceptionally high or exceptionally low rate in both rural and urban districts. An example of a State with an exceptionally low rural rate is Kentucky for fibrous ankylosis (rural, 1.8; urban, 2.8). Both of the sections into which Kentucky is divided show a relatively low rate for fibrous ankylosis, namely, in section 2, 2.0; in section 1, 2.1. This low rural rate for ankylosis in Kentucky is due to the relatively low venereal rate of this State and the small liability to accident in the farming operations with which the rural population is directly occupied.

High urban rates for ankylosis are found in Utah, where the rate for bony ankylosis is in rural districts 5.1, in urban districts 11.1. This is the highest ratio for urban districts of any of the States. The cities of Utah comprised in this study are Salt Lake City and Ogden, and it is therefore due to the findings in those cities that we have the rate of 11.1 for fibrous ankylosis. The venereal rate for Utah is low, but the traumatism rate is the highest of all States. The grand total for malunion of fracture of the upper and lower extremities and shortening of the lower extremity is 12.3 per 1,000 men, exceeding in this respect the State of Washington. The reason for this high rate is possibly the presence in Ogden of a great railroad center and car and railroad repair shops. Indeed, railroad-shop construction is Utah's greatest manufacturing industry. It is possible that the population includes many railroad employees who have suffered accidents which have led to inflammations of the joints and to bony and fibrous ankylosis.

The State of Maine also shows a high urban rate for bony ankylosis. Comparing that of rural and urban, the rural rate is 5.7 and the urban, 8.9. The only city of Maine included in our statistics is Portland, and it is therefore due to the high rate of ankylosis in Portland that the high urban rate of Maine (together with the high

rural rate) is due. The reason for these high rates for bony ankylosis in Portland and "rural" Maine is not clear. It may be due to a combination of the hazards of a lumber State, a great fishing and shipbuilding port, and many small manufacturing towns. Other high urban rates for ankylosis are found in Rhode Island, a State which is prevailingly urban and devoted to manufactures of various degrees of hazard. It is probable that the high ankylosis rate is therefore prevailing traumatic. In the case of high urban rate of Florida for fibrous ankylosis (5.8) we have an extreme condition which is no doubt associated with the high rate of gonorrhea that affects also the rural population. On the other hand, low urban rates for ankylosis are found in New York State and New Jersey, States with large urban populations; which populations, as we have already seen, are relatively free from ankylosis because relatively free from the diseases and accidents of which ankylosis is a complication.

43. *Hammer toe and hallux valgus*.—Hammer toe is a term applied to a condition of contraction of one of the toes, the proximal phalanx of which is raised above the level of the others, while the middle phalanx is flexed and the distal phalanx placed below the level of the other toes. This condition may be caused by shoes that are too short or too narrow, or it may be congenital and even hereditary. Hallux valgus is a term applied to a deformity in which the great toe or hallux is turned away from the median plane of the body to an exaggerated degree. This deviation of the great toe is induced by improper shoes. It is very common and becomes recognized as a deformity when the tarsophalangeal joint is much enlarged (forming a bunion), or when deviation of the toe is extremely marked. It thus appears that both of these deformities are in a great majority of cases due primarily to ill fitting, improperly constructed shoes.

For the two and a half million men there were recorded 5,879 cases of hammer toe and 12,815 cases of hallux valgus. Of hammer toe the rate is 2.1 per 1,000 of the men examined and for hallux valgus, 4.7, or 6.8 for both defects. The rate for the rural part of the population is 6.0 for both defects together, while for the urban population it is 8.2. Consequently there are only about three-quarters as many cases of hammer toe and hallux valgus found in 1,000 of the rural population as of the urban population. In other words, the ratio of rural to urban is about 0.75.

These prevailingly urban defects have a still greater ratio in the four large cities. Thus for hammer toe we have 2.9, for hallux valgus, 5.8, or 8.7 together. In detail the rates for hammer toe are 3.3 for Philadelphia, 3.0 for Boston and Chicago, and 2.9 for New York City, and the rates for hallux valgus are: 11.7 for Philadelphia, 7.3 for Boston, 5.1 for New York City, and 3.3 for Chicago. Together the rates are 15.0 for Philadelphia, the city which shows the largest rate of distorted toes. For Boston the combined rate is 10.3; for New York City, 7.8; and for Chicago, 6.3. The popular belief that Chicagoans wear large shoes seems to be supported by their comparative immunity from defective toes due to crowding into fashionable shoes.

Although, in general, these two-foot defects are commoner in urban than in rural districts in the ratio of 4 to 3, yet there are cer-



tain States in which there is no excess of the defect in the urban population when the combined rates are considered. Colorado: rural, 13.0; urban, 12.9; West Virginia: rural, 17.3; urban, 17.1; Wisconsin: rural, 5.7; urban, 5.7. In Colorado and West Virginia the rates are very high both for rural and urban, the rate for rural being from two to three times the average rate for the whole country. This great amount of deformity of toes in the rural population of these two mining States is probably to be ascribed to the conditions of foot wear in the mining population. Thus in the mining group of sections we find a combined rate of 8.4 which is high for rural districts. Also, in the State of Colorado, section 3, in the heart of the lead mining districts and without important cities, gives a rate of 11.2. In the case of West Virginia the largest defect rate (22.6) is found in section 1 which is the mountain section and the center of the coal-mining industry. Possibly the wearing of shoes in the damp of mines, which results in the contraction of the shoe leather, has had its influence in distorting the feet of young men in Colorado and West Virginia.

In the case of Wisconsin, the rate is exceptionally low for urban districts, being 5.7 as contrasted with 8.7 for urban districts throughout the country. The rate is even somewhat lower than the defect rate for Chicago. The suggestion arises that the type of shoe used in Chicago is employed in the cities of Wisconsin and gives a reduction in the defect rate in that State. In this connection it is noteworthy that the urban ratio for Illinois is also low, being 6.1 for the urban part of the state, only a trifle higher than the rate for Wisconsin. It is noteworthy that the Germans and Scandinavians, which constitute a large part of the population of urban Wisconsin, are characterized by absence of toe deformities, doubtless due to the use of a sufficiently large shoe. Thus, the rate for the German and Scandinavian sections combined in group 20 is 5.0 and that for Scandinavian combined in group 17 is 5.5. These are exceptionally low rates for the population which, in part, lives in cities of considerable size. In the following States the urban rate is at least double that of rural: Delaware (rural, 2.5; urban, 5.2); Florida (rural, 5.9; urban, 12.0); Kentucky (rural 1.4; urban, 4.3); Louisiana (rural, 1.8; urban, 5.6); South Carolina (rural, 4.8; urban, 11.9); Texas (rural, 2.4; urban, 6.3); Utah (rural, 3.9; urban, 10.2). In this list of States we see that the excess of urban over rural is partly due to the extraordinarily high rate of the urban districts, as in the case of Florida, South Carolina, and Utah, and in part due to the extraordinarily low rate in the rural districts, as we see in Kentucky, Louisiana, Texas, and Delaware. The high rate of bad feet in urban Florida is a striking fact in these statistics. Turning to the table of distributed sections by States, we find the highest rate in Florida is in section 2, which is an urban section. Section 1 contains Jacksonville and gives a total ratio of 8.5, somewhat below the average for cities. The high rate, therefore, for urban Florida must be due to local conditions either in Jacksonville or Tampa, and probably in the former. It will be noted that the defects in Florida fall almost entirely in the category of hallux valgus, which in section 1 is about fourteen times as common as hammer toe, although only twice as common as hammer toe in the country at large. This indicates either a

special tendency of examiners at local boards or camps from this section to note the presence of hallux valgus or else indicates that the exceptionally large proportion of the dwellers in Jacksonville and Tampa, especially the former, have badly distorted great toes as a result of wearing narrow shoes. The large rate for Utah is difficult to explain on any other hypothesis than the idiosyncrasy of the examiners.

On the other hand, the exceptionally low rural rate in Kentucky, Louisiana, and Texas is probably due to the comparative freedom from the use of shoes, and especially ill-fitting shoes, on the part of the inhabitants of these States. Indeed, we find throughout the agricultural districts of the South extraordinarily low rates for hallux valgus, generally under 2.5 per 1,000. And in the case of both Kentucky, section 2, and Louisiana, section 3, the rate falls to 1.4. It is to be noted that among the consolidated groups the inhabitants of the eastern manufacturing groups (section 5) have a combined rate for hammer toe and hallux valgus of 7.7. The commuter group (section 6) has a rate of 5.7. It is noteworthy that the rate for the agricultural Negro group (section 4) is high (6.6) as contrasted with the southern agricultural whites, a rate of 5.3. The mining groups (section 7) give an exceptionally high rate, 8.4. On the other hand, the sparsely settled districts that are occupied largely by Indians or Mexicans have low rates of 3.0 and 2.7, respectively. Also the northern agricultural areas occupied largely by the German and Scandinavian races, as has already been pointed out, have a low rate, about 5 per 1,000. Since these people occupy prevaillingly the rural districts (except for the cities of Wisconsin), they help to diminish the general rural rate for bad feet as contrasted with the general urban rate.

44. *Pes planus* (*flat foot*).—This defect consists of the change of form and the partial obliteration of the arches of the foot through a rotation of the higher lying bones upon the lower, especially of the astragalus upon the calcaneum or heel bone. There were relatively few cases of pronated foot noted.

The cause of flat foot and pronated foot is a weakness in the ligaments that hold the complex tarsal bones together and tie them to the metatarsal bones. This weakness is in some cases congenital and often hereditary; it is probable that a hereditary factor for flat foot exists in most of the actual cases. The conditions which immediately lead to the flat foot in the case of persons so predisposed are those (1) of disuse by which the ligaments become weakened, or (2) misuse by which strain abnormal in amount or accident are imposed upon ligaments, and improper and ill-fitting shoes are the most important factor. It must be remembered, moreover, that the foot is an organ of great complexity and has to perform the complex functions of sustaining the weight of the body, or receiving the shock of that weight during walking and jumping and at the same time of being built in such fashion as to give elasticity and resiliency to the walk. In consequence of all of these circumstances flat foot proved to be the greatest single defect found in the drafted men. There was a total of 301,146 cases recorded out of the 2,500,000 men studied in this report, giving a ratio of 109.35 per 1,000 men examined, or about 11 per cent. *Pes planus* constituted 196 out of every 1,000 defects found. Pronated

foot was recorded in 17,373 cases, or 6.31 per 1,000 men examined, being 11 per 1,000 of the defects found. Together flat foot and pronated foot were found in nearly 12 per cent of the total population considered and constituted 21 per cent of the defects found. The distribution of so important a defect which led, indeed, in 10 per cent of the cases to rejection from military service, but (as the numerous discharges for disability on account of flat foot prove) should have been rejected in many more, deserves careful consideration. Thus, there were about 6,000 men discharged for this disability in the Army of the United States during the year 1918 alone. The rural rate for flat foot was 99.1; the urban, 128.0. This indicates a great excess of flat foot among the dwellers of cities. Combining flat foot and pronated foot (as we shall in our future considerations) we find a rural rate of 104.8 and an urban rate of 135.4. The ratio of rural to urban is 77 per cent. Considering the four large cities together, we have a rate of approximately 144. Of these cities Boston has the highest rate, 177, Chicago comes next with 171, New York City next with 128.5, and Philadelphia last, 127.3, being somewhat below the average for urban population in general.

Passing now to an examination of the rates of flat foot in the different States, we find that in certain States there is often an excess or equality in rural in comparison with the urban rate. This excess is due either to the fact that the urban rate is abnormally low or the rural rate is abnormally high. To the first group belong the State of Connecticut (rural, 113; urban, 93); Delaware (rural, 107; urban, 107); Massachusetts (rural, 119, urban, 89). Inquiring into the reason for the low urban rate in these States, it is to be noted first that these three States are important manufacturing States, in which were located industries involved in the supplying of munitions and shipping in the period immediately preceding our entry into war. It seems probable that the conditions which had reduced the urban rate for these States was the fact that young men were lured in great numbers from the farms to these States on account of the call for workers in the new industries that had developed in them. An excess of young men of rural origin in cities would tend to diminish the amount of flat foot in these States because of the low rate of flat foot in rural young men. In support of this hypothesis we find that in the industrial towns of Connecticut, the urban rate is only 104 as contrasted with that of 135 for the country at large. In section 2 of Massachusetts, which contains a large number of industrial towns engaged in war work, such as Springfield and numerous towns in Middlesex and Essex Counties, the rate for flat foot was only 85. Also in the case of Rhode Island, the urban rate is reduced to 120, and in the entire State of Delaware, which was very largely associated with the shipbuilding industry, the rate is 107.

On the other hand, the excess of rural over urban rates is sometimes due to the fact that the rural rate is abnormally high. This seems to be true, for example, in Wisconsin, section 2, where the rural rate is 143, exceeding the normal urban rate of 133. The high rural rate of Wisconsin is doubtless due to the presence in that State (especially in section 2) of many Scandinavians. Thus, in the Scandinavian sections Nos. 1 and 2 the ratio for flat foot is 139 and 143, respectively, while in section 4, which is also rural, but has relatively few Scandinavians, the rate falls to 132. Indeed, the Scandinavian group



of sections that are prevailingly rural groups have the high rate for flat foot of 128. This high rate is perhaps to be associated with the relatively large size of the Scandinavians as compared with Germans and Austrians, among whom the rate is reduced to about 115 or 120. The Scandinavians, then, wear ample shoes but, on account of their weight, tend to have broken arches.

There are other States in which the relation between rural and urban rates is disturbed so that the urban rate is nearly or over twice the rural rate. This is true, for example, in the States of Alabama (rural, 60; urban, 121), Arkansas (rural, 50; urban, 96), Georgia (rural, 70; urban, 116), Kentucky (rural, 46; urban, 72), Louisiana (rural, 61; urban, 94), Oklahoma (rural, 84; urban, 179), Texas (rural, 71; urban, 111), Maine (rural, 75; urban, 139). The foregoing States, excepting Maine, are Southern States, which comprise in some cases a relatively large proportion of Negroes, and it will be observed that the disproportion between rural and urban is in all cases due much more to a reduction in the rural rate than to an abnormal increase in the urban. The reason for the low rural rate in the Southern States is the presence of Negroes. For the rate in group 4, including sections of agricultural Negroes, is only 81, whereas for native white agriculturists of the North it is 112. In the southern agricultural sections, where there is a smaller proportion of Negroes, the rate is 84. The Negro foot being normally flat was not noted as pathological in the same proportion of cases as in the white. However, a greater proportion had to be discharged for disability. Hence the tendency of the examiners to disregard the flat foot in the Negro was not warranted. Moreover, the inhabitants of the Southern States in general have less flat foot than inhabitants of the Northern States, doubtless because they use the feet more hygienically, both by standing less upon them (as required in manufacturing and mercantile pursuits), by walking more, as is required in agricultural pursuits so commonly pursued in the South, and by confining the feet less in shoes, particularly in the early developmental years. The reason for the low rural rate in Maine does not at once appear. The rate is exceptionally low in section 2, which includes the maritime district of Maine. The only ordinarily high urban rate among the States in which the urban rate is double the rural is that of Oklahoma, the only city studied in this State being Oklahoma City. The numbers consequently involved in this ratio are small and probably without significance.

45. *Loss of one or more fingers.*—This defect is due in the great majority of cases to accidents, especially accidents due to cutting instruments in use in agricultural or industrial life. The defect has, however, an important social as well as military bearing, since the loss of fingers diminishes by so much a man's capability for doing things. There were 13,906 cases recorded altogether, giving a ratio of 5.1 per 1,000. The defect was numerically important, constituting 9 per 1,000 of the defects noted. The rural rate is 5.1 and the urban 5. It appears, therefore, that loss of fingers is equally apt to be present in the urban and rural population. The ratio of rural to urban is 1.03. However, in the larger cities the rate is markedly less than in the urban districts in general, so that we may conclude that there is a greater hazard resulting in the loss of fingers in smaller cities than in rural districts. Of the four large cities, the ratio is

4.8 for Boston, 4.2 for Chicago, 4.1 for Philadelphia, and 2.6 for New York City. It appears, then, that there were markedly more fingerless men to be found in Boston than in New York City, probably due to smaller industrial hazards in the latter city. An examination of the different States reveals in some a marked departure from equality of rural and urban rates of this defect. Thus in the following States there are 25 per cent or more of loss of fingers in the rural than in the urban population: California (rural, 5.6 urban, 3.9), Colorado (rural, 5; urban, 3.9), Delaware (rural, 7.5; urban, 4.6), Montana (rural, 6.6; urban, 3.8), New York (rural, 5; urban, 3.6). Oregon (rural, 8.1; urban, 5.3), and Washington (rural, 9.6; urban, 7.3). In the foregoing list we see that the excess of rural rates is in some cases due to the fact that the rural rate is exceptionally high; in other cases to the circumstance that the urban rate is exceptionally low. Thus in the State of Washington the rate of 9.6 is nearly double the rural rate for the whole country. In Oregon the rate of 8.1 is also exceptionally high, to a less degree, as is true also of the rates of Delaware, Montana, and Colorado. Now, Washington and Oregon are two States with an active lumber industry and many sawmills, and the high rate of loss of fingers in these States may be ascribed to the lumber industry. In the case of Delaware we have extensive manufacturing towns which are not included in the urban districts, as the urban district comprised only the city of Wilmington. Similarly, Montana and California, mining States, probably contributed to the loss of fingers in mining and blasting operations. Exceptionally low rates were found in the cities of Colorado (Denver and Pueblo). The low rate of 2.9 found in the cities of California is perhaps due to the comparative absence of hazardous manufactories in those cities. The urban rate of 3.6 in New York State is low, due to the conditions as already noted in New York City.

On the other hand, in the following States there is a marked excess of urban over rural rate for loss of fingers: Alabama (rural, 4; urban, 5.4), Arkansas (rural, 4.3; urban, 8.5); Georgia (rural, 4.4; urban, 5.3), Iowa (rural, 6.3; urban, 7.7), Kansas (rural, 4.8; urban, 6.3), Ohio (rural, 5; urban, 6.4), Oklahoma (rural, 4.5; urban, 5.2), Rhode Island (rural, 5.7; urban, 7.7), Tennessee (rural, 4.7; urban, 5.4), Texas (rural, 3.8; urban, 4.8), Virginia (rural, 5.6; urban, 7.7), West Virginia (rural, 5.2; urban, 6.6).

An examination of this list shows that the great excess of loss of fingers in urban districts occurs chiefly in the Southern States, such as Arkansas, Virginia, West Virginia, Alabama, Georgia, Tennessee, Oklahoma, Texas, and Missouri. In the States of Arkansas, Virginia, and West Virginia this excess is due to an absolutely high rate in urban districts. In the case of Arkansas this means Little Rock; in the case of Virginia, a number of small cities, and in the case of West Virginia, Huntington and Wheeling. Evidently in these small towns there are certain hazardous occupations, like that of milling, which are responsible for the excess. Similarly, we have a high urban rate for Rhode Island, Ohio, and Kansas. A low rural rate is found in Texas (which has a small lumber industry), also the other Southern States of Alabama, Arkansas, Georgia, and Oklahoma. The low rate in Alabama is largely due to conditions in section 4, a section which contains an exceptionally large number of

Negroes. In this connection it is to be noted that the Negro rate is low, 4.7, as compared with northern agricultural rates of 5.5 and 6.4 for sections 1 and 2, respectively. Perhaps the low rural rate for the other Southern States is likewise due to the small proportion of Negroes who have lost fingers, due to a natural caution or to the fact that they are more rarely employed in hazardous occupations than are white people.

*Deformity of upper extremity.*—With this defect, so important in civil life, especially in the manufacturing and clerical positions, there were recorded in the whole United States 6,023 persons, or 2.2 per thousand men examined. This defect constituted about four out of every thousand defects found. The rural rate is 2.3 per 1,000, and the urban 1.9 per 1,000. The ratio of rural to urban is 1.23. It appears, then, that deformities of the upper extremity are somewhat more apt to be found in cities than in country districts. Considering next, the distribution of the defect in rural and urban districts in the different States, we find an excess of rural over urban of about 50 per cent in the following States:

State.	Rural.	Urban.	Ratio $\frac{R}{U}$
Alabama.....	2.1	1.4	1.5
Colorado.....	3.1	1.9	1.6
Delaware.....	2.0	.7	2.9
Florida.....	2.2	1.5	1.5
Georgia.....	2.9	1.7	1.7
Louisiana.....	2.9	1.9	1.5
Maine.....	4.2	1.7	2.5
Michigan.....	2.1	1.4	1.5
Minnesota.....	2.8	1.4	2.0
Missouri.....	3.1	2.2	1.4
New York.....	2.6	1.6	1.6
Ohio.....	2.5	1.6	1.6
Oregon.....	3.2	2.2	1.5
Texas.....	2.5	1.3	1.9
West Virginia.....	2.2	.7	3.1

On the other hand, the following States show less than two-thirds the rate in rural that obtains in urban districts:

State.	Rural.	Urban.	Ratio $\frac{R}{U}$
Arkansas.....	1.9	9.0	0.21
Connecticut.....	2.1	3.0	.70
Oklahoma.....	2.4	4.6	.52
South Carolina.....	1.6	3.6	.44

An examination of the above tables shows that some of the excessive ratio of rural divided by urban in the first series is due in some cases to the extraordinarily high ratio for rural districts and in others to the exceptionally low rate for urban districts. In a few States both rural and urban rates are high. The exceptionally high rural rates are found in Maine, Oregon, Missouri, and Colorado. These are all States in which the rural inhabitants are engaged in occupations that are hazardous to the arms, and doubtless the deformities found in them on medical examination were due to injuries received in such occupations. The nature of the hazard in Maine and Oregon is lumbering; in Colorado, and perhaps also in Missouri, it is mining. In Delaware the urban rate is low, indicating that in this



largely manufacturing State there has been a selective migration to the city of Wilmington of persons without defects of the arms. In the case of West Virginia the small rate may be accidental, as the numbers involved are small. States with a low urban rate are southern States, such as Alabama, Florida, Georgia, Louisiana, and Texas. These are prevailingly rural States also and are characterized by a rather high rate of the defect in rural districts. This is because in these States the hazards of the country are relatively greater than those of the cities, whereas in South Carolina, with its large cotton mills, the urban rate is more than double that of rural. The high urban rate as contrasted with rural is shown in the four States in the lower series. As just pointed out, South Carolina has an exceptionally high urban rate. The State of Connecticut, with its extensive factories, also shows a relatively high urban rate as contrasted with rural. In the case of Arkansas the extraordinarily high urban rate is due to conditions in Little Rock. Exactly what those conditions are does not appear from the statistics. The rural districts of the South have a larger proportion of deformities of the upper extremities than those of the North, which is no doubt due to the better surgical facilities in the North. The amount of deformity of the upper extremity is far less in the eastern manufacturing cities of the North than it is in the agricultural sections of the North, and still less in the commuter sections.

*Deformity of lower extremity.*—This defect, of great military importance, was recorded in 12,972 men, or 4.7 per 1,000 men examined. It ranked high among the defects found in the population, since there were 8.5 per 1,000 defects discovered. The rate for rural districts is 5.1; for urban 4. This defect, then, is much commoner in the country than in the cities in the ratio of 1.3 to 1. The ratio of rural to urban is without any uniformity in all the States. In the left-hand side of the following table is given a list of States in which the rural is at least 50 per cent more than the urban, and on the right-hand side is given a list of States in which the ratio of rural to urban is 1 or less.

State.	Rural.	Urban.	Ratio $\frac{R}{U}$	State.	Rural.	Urban.	Ratio $\frac{R}{U}$
Louisiana.....	5.5	2.8	2.0	Arkansas.....	4.5	10.0	0.45
Maine.....	8.3	3.3	2.5	Connecticut.....	3.7	4.6	.80
Massachusetts.....	4.9	3.3	1.5	Colorado.....	5.6	7.0	.80
Minnesota.....	5.3	3.5	1.5	Maryland.....	3.5	4.3	.81
Montana.....	4.3	.9	4.8	Oklahoma.....	5.7	6.1	.93
New York.....	5.7	3.4	1.7	South Carolina.....	5.8	6.2	.94
North Carolina.....	6.4	3.5	1.8	Utah.....	4.6	6.2	.74
Ohio.....	5.9	3.5	1.7				
Oregon.....	5.8	4.1	1.4				
Pennsylvania.....	5.8	3.9	1.5				
Rhode Island.....	12.0	7.2	1.7				
Washington.....	6.9	3.9	1.8				
West Virginia.....	5.4	2.6	2.1				
Wisconsin.....	5.3	3.1	1.7				

In the left-hand table the excess of ratio of rural to urban is in part due to an abnormally large rural rate and in part to an abnormally small urban rate. In the case of Rhode Island, however, both the rural and urban rates are excessively high. This is probably because in this manufacturing State, which is, moreover, prevailingly urban, the industrial occupations (including railroading) have caused an

excessive amount of deformities of the leg. In the case of Maine the rural rate is exceptionally high, which is possibly to be associated with the lumbering industry in that State. In Montana both rural and urban rates are low. This is a prevaillingly rural State, the only city being that of Butte. The low defect rate in this State, despite the mining and lumbering industries, is no doubt associated with the general fact that the rate of defective extremities in the west is kept low in many regions because persons with congenital or early acquired defects have remained in the East and did not participate in the western migration. High rural rates are found in such States as Pennsylvania, with large populations engaged in the hazardous duties of mining and steel manufacturing. New York State, with its many small manufacturing towns, which have been counted as part of the rural districts of the State, and Louisiana and Washington, with their extensive lumber industry, have rather high rural rates.

Of the States with more nearly an equality of defective lower extremities found in urban and rural districts, we have South Carolina, with its hazard of cotton mills in the cities; Arkansas, which has a large urban (Little Rock) hazard for the upper extremities also; Colorado, the cities of which may have received certain men with deformed extremities acquired in railroad or mining operations; and Utah, which has Ogden, the center of a large railroad system, and consequently with a high ratio of men with deformed lower appendages.

*Underweight.*—This condition was recorded in 72,972 men, being 26.5 out of every thousand men examined. Underweight constituted nearly 48 per 1,000 of the defects found. The rural rate is 23.8 per 1,000 and the urban rate is 31.3 per 1,000. This condition is consequently only found much more frequently in urban than in rural population in the ratio of 0.76 to 1. In the four large cities the rate is slightly less than the general urban rate, namely, 30.7. Of the separate cities we find the highest rate for this defect to be in Philadelphia, 37.1; next in New York City, 30.7; next Boston, 30.1; and last in Chicago, 27.4. The larger proportion of underweight persons in New York City as compared with Chicago is due to a difference in the racial composition of these cities, since the former contains a large proportion of Polish Jews and south Italians, who are small races.

The following table gives in the left-hand column a list of States and rural and urban ratios in which the rural is equal to or exceeds the urban rate. In the right-hand side of the table is given a list of States with rural and urban rates in which the urban is 50 per cent or more greater than the rural.

State.	Rural.	Urban.	Ratio $\frac{R}{U}$	State.	Rural.	Urban.	Ratio $\frac{R}{U}$
Georgia.....	40.1	39.6	1.0	Arkansas.....	18.6	31.9	0.58
Maine.....	62.1	58.3	1.1	California.....	29.9	49.0	.59
Ohio.....	21.5	20.6	1.0	Delaware.....	35.0	57.6	.61
Oklahoma.....	20.2	10.1	2.0	Iowa.....	21.9	35.0	.63
Rhode Island.....	99.4	90.0	1.1	Kansas.....	11.5	21.9	.53
Tennessee.....	47.0	36.1	1.3	Kentucky.....	32.3	50.1	.64
Washington.....	23.7	23.2	1.0	Louisiana.....	26.6	54.3	.49
Wisconsin.....	25.1	17.3	1.5	Maryland.....	26.1	40.2	.65
				South Carolina.....	29.4	71.1	.41
				Utah.....	16.4	44.6	.37
				West Virginia.....	12.5	19.1	.65

A consideration of the list of States in which there is nearly an equality between the urban and rural ratios reveals the fact that in some of these the rates in both sections are high and in others, in both sections, very low. Thus, Rhode Island stands in a class by itself in its high rate for underweight, about 10 per cent of the men of military age having been placed in this category and largely rejected, therefore. This State is characterized by a large proportion of French Canadians, and it is the French Canadian group (No: 19), in the consolidation sections, that shows the highest ratio of cases of underweight (66 per 1,000). We may, therefore, ascribe the high rates for both urban and rural sections in Rhode Island primarily in that State to so large a proportion of French Canadians. The high rates found in Georgia and Tennessee are perhaps to be ascribed to hookworm in the white population in that State. It appears, indeed, that the native white agricultural population of the South (section No. 3) has the largest proportion of underweight of any of the agricultural sections. It is noted also that Maine has a very high proportion of underweight in both rural and urban sections, and it also has a large French Canadian population, particularly in section 3, where we find the maximum for this defect in this State, namely, 80.5. In Wisconsin there is an exceptionally low urban rate of 17.3. The table of State sections indicates that this low rate is probably due to the fact that the cities of Wisconsin contain a smaller proportion than do those of other States of small races.

Considering the States in which there is most marked differences between rural and urban sections, we find again that these differences are due in some cases to the high urban rate, in other cases to the low rural rate, and in some cases to the fact that both urban and rural rates have been depressed or raised in different degrees. Thus, of high urban rates for underweight, South Carolina furnishes a striking example. Whether this is due to the bringing down from the mountains into the newly developed factory towns of persons of underweight, because of hookworm or malaria, is not certain but seems possible. In the case of Delaware, we probably have a recent migration to the city of Wilmington of representatives of the smaller races of the population of the United States who have been lured there by war conditions. The rural rate is abnormally low for underweight in the case of the States of Kansas, West Virginia, and Utah. Kansas is a prevailingly urban State, free from the parasitic conditions obtaining in some of the Southern States, and not affected by the condition of malnutrition which may be present in some of the Eastern States. Perhaps the general prosperous condition of the inhabitants of Utah accounts for the low proportion of underweight in the rural population of that State. In the case of Utah there is an especially low defect rate for underweight in section No. 3, which is the mining section of the northeastern part of the State. This is probably due to the selection of rugged men for the occupation of mining. In the case of California we have to deal with one in which the rural rate is higher than the average, but the urban rate for underweight is much increased above the average of urban rates. This is probably due to the presence of persons with pulmonary tuberculosis who have migrated to California



and are found in larger numbers in the cities than in the rural districts of that State. Similarly, we find Colorado also has a high ratio for the cities (3.3) and also for the urban districts (2.6). But these conditions are not so pronounced as in the State of California.

*Underheight.*—This defect was recorded in the United States in 8,004 cases, being 2.9 per 1,000 men. Underheight constituted 5.2 per 1,000 of the defects found. The rate for rural districts is 2.16; for urban, 4.25. Thus, cases of underheight were approximately half as common in rural as in urban districts (5.1 to 1). In the four large cities the rate is 5.5. Considering these cities separately, the rates are for Philadelphia, 8.1; for Boston, 7; New York City, 5.5, and for Chicago, 3.

Since height is an important racial characteristic, it seems probable that the large proportion of persons found with underheight in the large cities as contrasted with cities in general or with rural districts, is due to the presence in them of a larger proportion in their population of persons belonging to short races. From this point of view we should expect more cases of underheight in New York City, which had 15 per cent Russians and 11 per cent Italians at the last census, than in Philadelphia, which had about 9 per cent Russians and 5 per cent Italians in the census of 1910. It is possible that in the seven years elapsing between the last census and the draft there was an important change in the proportion of short races in Philadelphia and New York City. The comparative infrequency of persons too short for military service in Chicago is striking.

Taking the country as a whole, underheight is found only half as commonly in rural as in urban districts, yet there is a great variation in this respect in several States.

In the following table is given in the left-hand column a list, by States, of underheight found in rural and urban districts, respectively. In the right-hand column is given a list of States in which the urban is two and one-half times or more the rural rate.

State.	Rural.	Urban.	Ratio $\frac{R}{U}$	State.	Rural.	Urban.	Ratio $\frac{R}{U}$
Colorado.....	1.8	2.4	0.75	Louisiana.....	1.8	4.2	0.43
Georgia.....	1.0	2.5	.40	New York.....	3.6	5.1	.71
Kansas.....	1.0	1.2	.83	Utah.....	1.5	5.9	.25
Michigan.....	2.0	2.1	.95				
Montana.....	1.6	1.7	.94				
North Carolina.....	2.3	0.6	3.8				
Ohio.....	1.9	1.8	1.1				
Oregon.....	3.9	3.5	1.1				
Rhode Island.....	13.4	12.0	1.1				
West Virginia.....	2.3	2.6	.88				

Considering, first, the left-hand table, it appears that the abnormal relations between rural and urban rates are due in some cases to increased proportion of urban defects, in other cases to a great decrease in rural defects, and in a few cases to a decrease or increase in both urban and rural with relation to the average for the whole country. Thus, the rate  $\frac{R}{U}$  for under height reaches a minimum in Georgia. In Rhode Island the rural rate for under height is 13.4,

which is six times the rural rate for the United States as a whole. The urban rate is slightly less than the rural, 12.0. This exceptionally large proportion of under height persons in rural Rhode Island is doubtless due largely to the French Canadians who have the highest rate for this defect of any of the groups, being more than double the average urban rate. The rate is relatively even higher in rural districts owing to the fact that the part of Rhode Island outside of the great cities has become largely populated by members of short races who have migrated from the cities. So it comes about that the population of rural and urban Rhode Island does not differ greatly in average stature, but shows about the same rate of persons underheight.

Oregon is another State with a larger proportion of men in rural than in urban districts who are under height. The smallest urban rate for under height is in Montana, due to the fact that, doubtless, persons of prevailingly large size go to that State. In the three States which show the highest diversity between rural and urban rates, we have an extraordinarily high rate in rural Utah. The next highest rate is in New York (5.1), in which the large proportion of Polish Jews and South Italians accounts for the large number of rejections. In the case of Louisiana the rejections are probably largely to be ascribed to New Orleans. Indeed in section No. 2, which includes that city, we have a defect rate for underheight of 4.1. This is probably largely due to the French which form so large a part of the population of this State. It will be noted that elsewhere in the South the proportion of men who are underheight is rather small. This is due to the presence, especially in the rural regions, of Negroes in whom the defect rate for this defect is below the average of the country. A small defect rate (1.7) is found also in the agricultural whites of the South, in the native white regions of Scotch origin, and in the Scandinavian group.

*Cryptorchidism.*—The failure of one or both testes to descend is an index of imperfect sex development. There were altogether 6,964 men found with this defect, constituting 2.5 per 1,000 of the men examined. The defect constituted about 4.5 per 1,000 defects. The rural rate is 2.5 and urban 2.7. Thus, there is not a great difference between the rates, but there is less of the defect noted in rural than in urban districts. In the four large cities taken together the rate was 2.7 and specifically it was in Chicago 2.7, New York 3, Boston 2.5, and Philadelphia 1.7. The relation of urban to rural rates is 0.92.

Although there is nearly an equality between the incidence of cryptorchidism in rural and urban districts, yet the relative incidence in the two districts differs in different States. In the following table is given on the left-hand side a list of States in which the rural rate is greater than the urban, and on the right-hand side is given a list of States in which the urban exceeds the rural rate by 25 per cent or more.

State.	Rural.	Urban.	Ratio $\frac{R}{U}$	State.	Rural.	Urban.	Ratio $\frac{R}{U}$
Colorado.....	4.0	3.1	1.3	Arkansas.....	1.7	2.1	.81
Connecticut.....	3.3	3.0	1.1	Georgia.....	1.3	2.5	.52
Florida.....	1.4	0.6	2.3	Iowa.....	2.0	4.2	.69
Illinois.....	2.7	2.7	1.0	Kentucky.....	2.0	2.0	1.0
Kansas.....	2.8	2.4	1.2	Maine.....	2.6	3.9	.67
Louisiana.....	1.6	1.5	1.1	New York.....	2.3	3.0	.77
Massachusetts.....	3.5	3.1	1.1	Rhode Island.....	2.7	4.2	.64
Michigan.....	2.7	2.5	1.1				
Nebraska.....	2.8	0.9	3.1				
New Jersey.....	2.9	2.7	1.1				
Oregon.....	3.5	1.6	2.2				
Pennsylvania.....	2.4	2.2	1.1				
South Carolina.....	2.1	2.0	1.1				
Utah.....	2.9	2.3	1.3				
West Virginia.....	2.5	2.3	1.1				

An examination of the left-hand table reveals certain States with an exceptionally high ratio for rural, such as Colorado, Massachusetts, and Oregon. Exceptionally low rates were found in the urban districts of Connecticut, Louisiana, and Nebraska. The reason why there is a greater rate in rural than in urban districts in any State is doubtless because of the presence in rural districts in that State of a larger proportion of races liable to cryptorchidism. Now we have seen from the consolidated sections that there has been an especially large proportion of cryptorchidism among the French Canadians, a race which includes prevalingly rural people, and consequently we are not surprised to find a high rural rate for this defect in Massachusetts and Vermont; the latter State (which is entirely rural) has a rate for cryptorchidism of 3.9. The reasons for the high rural rate in Colorado and Oregon are somewhat obscure. The low urban rate in Alabama and Florida is perhaps associated with the low rate throughout the Southern States owing to the fact that the Negro population is far less subject to cryptorchidism than is the white race. Indeed, the rate for group No. 4 (agricultural Negroes) is only 1.6, as contrasted with 2.9 for the northern agricultural foreign and native group, and 2.3 for the agricultural white group of the South. In the eastern manufacturing group the rate rises to 2.8.

On the left-hand side of the table we have some exceptionally low rural rates in the southern States of Arkansas, Georgia, and Louisiana, and this is because of the presence of Negroes in large numbers in these States. There are, moreover, high urban rates in Iowa, Louisiana, and Rhode Island. The high urban rate in Louisiana is no doubt due to the French of New Orleans. Similarly, the high rates in Rhode Island and Maine are probably due to the presence of the same race.

TABLE 188.—*Ratios for selected defects or diseases, rural (all), urban districts, and four large cities.*

Disease.	Chicago. <sup>1</sup>	Boston. <sup>1</sup>	New York. <sup>1</sup>	Philadelphia. <sup>1</sup>	Selected urban.	All others (rural).
Total.....	620.55(+11.40)	691.66(+82.51)	608.37(— 0.78)	598.12(—11.03)	609.15	528.33
Pes planus.....	167.04(+39.01)	159.92(+31.89)	123.32(— 4.71)	112.46(—15.57)	128.03	99.05
Errors of refraction plus defective vision (cause not stated).....	47.97(+ 4.00)	73.55(+29.58)	68.77(+24.80)	42.01(— 1.96)	43.97	26.83

<sup>1</sup> Above urban rate indicated by (+); below urban rate indicated by (—).



TABLE 188.—Ratio for selected defects or diseases, etc.—Continued.

Disease.	Chicago. <sup>1</sup>	Boston. <sup>1</sup>	New York. <sup>1</sup>	Philadelphia. <sup>1</sup>	Se- lected urban.	All others (rural).
Valvular diseases of the heart and endocarditis...	39.39(− 1.40)	38.65(− 2.14)	48.57(+ 7.78)	43.46(+ 2.67)	40.79	28.87
Total tuberculosis.....	32.03(− 1.29)	31.96(− 1.36)	30.91(− 2.41)	31.71(− 1.61)	33.32	27.86
Total venereal.....	28.59(− 3.03)	15.24(−16.38)	14.09(−17.53)	22.31(− 9.31)	31.62	32.93
Underweight.....	27.41(− 3.92)	30.09(− 1.24)	30.52(− .81)	37.10(+ 5.77)	31.33	23.83
Pulmonary tuberculosis...	21.69(− 1.83)	20.72(− 2.80)	23.27(− .25)	23.57(+ .05)	23.52	18.37
Tonsillitis, hypertrophic...	17.11(− 6.37)	29.79(+ 6.31)	25.39(+ 1.91)	28.83(+ 5.35)	23.48	22.88
Gonococcus infection.....	21.79(− 1.42)	10.79(−12.42)	10.41(−12.80)	17.68(− 5.53)	23.21	25.36
Defects and deformities of feet (excluding pes planus).....	13.79(− 8.28)	37.07(+15.00)	18.16(− 3.91)	37.46(+15.39)	22.07	17.89
Inguinal rings, enlargement of.....	14.33(− 6.81)	32.72(+11.58)	22.02(+ .88)	18.70(− 2.44)	21.14	17.80
Hernia.....	19.73(− .87)	17.07(− 3.53)	17.64(− 2.96)	19.33(− 1.27)	20.60	20.97
Deformities of extremities (excluding malunion of fractures) other than hands and feet.....	17.52(− .36)	15.65(− 2.23)	14.02(− 3.86)	17.28(− .60)	17.88	18.61
Defective and deficient teeth plus dental caries.....	12.91(− 2.50)	32.17(+16.76)	14.36(− 1.05)	12.20(− 3.21)	15.41	12.52
Otitis media and perforated ear drum.....	12.44(− .49)	10.79(− 2.14)	23.57(+10.64)	18.72(+ 5.79)	12.93	4.74
Diseases and disorders of veins.....	10.19(+ 1.29)	9.21(+ .31)	6.70(− 2.20)	6.27(− 2.63)	8.90	8.71
Mental deficiency.....	8.05(− .72)	8.76(− .01)	8.34(− .43)	8.24(− .53)	8.77	17.59
Syphilis.....	6.16(− 1.32)	4.20(− 3.28)	3.37(− 4.11)	3.98(− 3.50)	7.48	6.64
Functional cardiac disorders.....	6.69(− .06)	5.67(− 1.08)	6.16(− .59)	6.99(+ .24)	6.75	5.97
Ankylosis of joint.....	6.52(+ .27)	5.92(− .33)	4.30(− 1.95)	5.78(− .47)	6.25	7.03
Suspected tuberculosis.....	6.46(+ .34)	7.24(+ 1.12)	3.67(− 2.45)	4.09(− 2.03)	6.12	6.27
Curvature of spine.....	7.62(+ 1.71)	5.98(+ .07)	5.96(+ .05)	5.05(− .86)	5.91	5.32
Defective hearing.....	6.32(+ .53)	6.53(+ .74)	5.91(+ .12)	3.82(− 1.97)	5.79	5.30
Cardiac dilatation and hypertrophy.....	4.27(− 1.25)	7.10(+ 1.48)	8.68(+ 3.06)	6.90(+ 1.28)	5.62	4.11
Epilepsy.....	4.53(− .26)	6.13(+ 1.34)	5.62(+ .83)	5.52(+ .73)	4.79	5.36
Goiter, simple.....	11.51(+ 7.14)	.20(− 4.17)	.76(− 3.61)	1.11(− 3.26)	4.37	4.33
Underheight.....	3.00(− 1.25)	7.04(+ 2.79)	5.91(+ 1.66)	8.12(+ 3.87)	4.25	2.16
Fractures, malunion.....	3.54(− .53)	5.06(+ .99)	3.12(− .95)	3.44(− .63)	4.07	4.77
Goiter, exophthalmic.....	8.59(+ 4.83)	.56(− 3.20)	2.78(− .98)	2.12(− 1.64)	3.76	2.80
Paralysis, minor and major.....	3.05(− .22)	3.09(− .18)	3.27	2.97(− .30)	3.27	3.14
Congenital genital defects.....	3.23(+ .01)	2.93(− .29)	3.59(+ .37)	2.20(− 1.02)	3.22	2.96
Defective physical development.....	1.59(− .84)	2.89(+ .46)	2.12(− .31)	1.57(− .86)	2.43	2.78
Obesity.....	2.33(− .04)	1.92(− .45)	2.87(+ .50)	1.40(− .97)	2.37	1.49
Arthritis.....	2.15(+ .16)	1.62(− .37)	1.26(− .73)	1.51(− .48)	1.99	2.48
Drug addiction.....	.24(− .80)	.86(− .18)	2.15(+ 1.11)	1.07(+ .03)	1.04	.26
Neurasthenia, neurosis and hysteria.....	1.19(+ .25)	1.52(+ .58)	1.11(+ .17)	.94	.94	.87
Chancroid.....	.64(− .29)	.25(− .68)	.31(− .62)	.65(− .28)	.93	.93
Dementia præcox.....	1.31(+ .40)	3.60(+ 2.69)	1.19(+ .28)	1.07(+ .16)	.91	.69
Deficient chest measurement.....	1.00(+ .13)	.30(− .57)	.66(− .21)	.59(− .28)	.87	.86
Cicatrical contractures and deformities.....	.82(+ .02)	1.06(+ .26)	.69(− .11)	.71(− .09)	.80	.94
Psychasthenia and psychoneurosis.....	1.06(+ .35)	.86(+ .15)	.89(+ .18)	.73(+ .02)	.71	.60
Constitutional psychopathic states.....	.38(− .25)	.51(− .12)	1.18(+ .55)	.55(− .08)	.63	.51
Alcoholism.....	1.36(+ .80)	1.57(+ 1.01)	.44(− .12)	.46(− .10)	.56	.17
Psychosis, manic-depressive.....	.20(− .01)	.15(− .06)	.38(+ .17)	.31(+ .10)	.21	.21
All others.....	12.81(− 3.33)	32.75(+16.61)	29.96(+13.82)	27.14(+11.00)	16.14	24.57

<sup>1</sup> Above urban rate indicated by (+) ; below urban rate indicated by (−).

That the significance of the terms employed for diseases and defects shall be clear, the following list is included, giving in each case the general terms employed in this study with the more detailed terms included under them:

## I. INFECTIOUS DISEASES.

1. Dysentery. (Dysentery, bacillary; specify type. Dysentery, balantidic. Dysentery, entamoebic. Dysentery, other protozoal. Dysentery, unclassified.)
2. Mycoses. (Actinomycosis. Blastomycosis. Erythrasma. Mycotic disease. Sporotrichosis. Trench foot.)

3. Pellagra. (Pellagra.)
4. Infectious diseases, carriers of. (Meningitis, cerebrospinal, epidemic carrier. Diphtheria bacillus, carrier. Typhoid bacillus, carrier. Carrier, others.)
5. Infectious diseases, other. (Aerogenes capsulatus infection. Anthrax, general infection. Anthrax, malignant pustule. Beriberi. Chicken pox. Cholera, Asiatic. Dengue. Diphtheria, L. Erysipelas, L. Foot-and-mouth disease. German measles. Glanders. Hemoglobinuric fever. Influenza. Kala azar. Laryngitis, diphtheritic. Leishmaniasis, American. Leishmaniasis, oriental. Leprosy. Liver, acute yellow, atrophy of. Malarial fever, estivo-autumnal. Malarial fever, mixed. Malarial fever, quartan. Malarial fever, tertian. Malarial fever, unclassified. Malta fever. Measles. Meningitis, cerebrospinal, epidemic. Mumps. Other diseases of epidemic. Pappataci fever. Paratyphoid fever, a. Paratyphoid fever, b. Plague, bubonic. Plague, pulmonary. Plague, septicemic. Poliomyelitis, anterior, acute. Pyemia, surgical. Rabies. Rat-bite fever. Relapsing fever, Carter, Asiatic. Relapsing fever, Dutton, African. Relapsing fever, Koch. Relapsing fever, Navy, American. Relapsing fever, Obermeyer, European. Rheumatic fever. Rocky Mountain spotted fever. Sappremia. Scarlatina. Septicemia, general; specify organism. Sprue. Tetanus. Trench fever. Trench mouth. Trypanosomiasis. Typhoid fever. Typhoid vaccination. Typhus fever. Vaccinia, cowpox. Variola, smallpox. Whooping cough. Yaws. Yellow fever. Filariasis. Trichinosis. Vaccination other than smallpox or typhoid fever.)

## II. TUBERCULOSIS.

6. Tuberculosis, pulmonary. (Pulmonary, acute. Pulmonary, acute, bronchopneumonic. Pulmonary, acute, miliary. Pulmonary, acute, pneumonic. Pulmonary, chronic. Pulmonary, chronic, active. Pulmonary, chronic, arrested.)
7. Suspected tuberculosis or weak lungs. (Suspected tuberculosis or weak lungs.)
8. Tuberculosis of other organs. (Abscess, tuberculous, L. Choroiditis, tubercular. Sacro-iliac disease, tuberculosis. Keratitis, tuberculous. Lupus erythematosus. Lupus vulgaris. Meningitis, tuberculous. Scrofuloderma. Tuberculide, papulo, necrotic. Tuberculosis, other location; locate. Tuberculosis, abdominal. Tuberculosis, general miliary. Tuberculosis, Verrucosa. Tuberculosis, large joints. Tuberculosis, bone.)

## III. VENEREAL DISEASES.

9. Syphilis. (Retinitis, syphilitic. Syphilis, hereditary, L. Syphilis, primary; state manifestations or L. Syphilis, secondary; state manifestations or L. Syphilis, tertiary; state manifestations or L. Syphilis, unclassified.)
10. Chancroid. (Chancroid. Chancroidal lymphadenitis. Chancroidal lymphangitis. Chancroidal paraphimosis. Chancroidal phimosis.)
11. Gonococcus infection. (Gonococcus, infection of, L. Gonorrheal, stricture of urethra.)

## IV. GENERAL DISEASES, OTHERS.

12. Rickets. (Rickets.)
13. Curvature of spine. (Curvature of spine. Scoliosis.)
14. Cancer and other tumors, malignant. (Carcinoma, L. Chloroma. Endothelioma, L. Epithelioma. Epithelioma multiplex benignum. Epulis. Hypernephroma, L. Lymphosarcoma, L. Melanoma. Melanosarcoma. Mesothelioma, nephrogenic. Myeloma, multiple. Papillo-adenocarcinoma of kidney. Sarcoma, L.)
15. Tumors, benign. (Adenoma, L. Adenoma sebaceum. Adenoma sudoriparum. Angioma, L. Angioma cavernosum. Angioma serpiginosum. Chondroma, L. Cyst, L. Cystadenoma, L. Cystoma, L. Dermoid cyst, L. Enchondroma. Fibroma, L. Glioma. Granuloma coccidioides. Granuloma fungoides. Lipoma, L. Lymphangioma, L. Lymphangioma circumscriptum. Myoma, L. Myxoma, L. Neurofibroma. Neuroma, L. Osteoma, L. Papilloma, L. Retention cyst. Sarcocoele. Sebaceous cyst, L. Teratoma. Tumors, benign, others, L. V.)
16. Arthritis. (Arthritis, L. C. V. Gout.)
17. Diabetes mellitus. (Diabetes mellitus. Glycosuria.)
18. Goiter, Exophthalmic. (Exophthalmic goiter.)

19. Cretinism and Myxedema. (Cretinism. Myxedema.)
20. Addison's disease. (Addison's disease.)
21. Gigantism. (Gigantism.)
- 21A. Acromegaly. (Acromegaly.)
22. Leukemia. (Lymphocytic leukemia. Myelocytic leukemia.)
23. Hodgkin's disease. (Hodgkin's disease. Lymphadenoma.)
24. Goiter, simple. (Goiter, simple.)
25. Ductless glands, other disease of. (Thymus gland, diseases of. Spleen, diseases of. Other disease of the ductless glands.)
26. Anemia. (Anemia, pernicious. Anemia, simple. Anemia, splenic. Hypemia.)
27. Hemophilia. (Hemophilia.)
28. Obesity. (Adiposis dolorosa. Obesity. Overweight.)
29. Purpura. (Purpura simplex. Purpura, hemorrhagica. Purpura rheumatica.)
30. Muscular rheumatism. (Muscular rheumatism.)
31. General diseases, other. (Diabetes insipidus. Asthenia. Other diseases, general. Polycythemia, chronic. Scurvy. Aviators' disease or sickness. Convalescing from disease or operation which was treated or performed in a civilian hospital. Reaction from salvarsan or neo-salvarsan. Disease not specified. Convalescing from previous operation or disease.)
32. Alcoholism. (Alcoholism, acute. Alcoholism, chronic.)
33. Drug addiction. (Inebriety, drug addiction; specify drug.)
34. Poisoning, chronic. (Poisoning, chronic lead. Stomatitis, mercurial. Poisoning, chronic, unclassified.)
35. Miner's consumption, anthracosis. (Miner's consumption, anthracosis.)

#### V. NERVOUS DISEASES.

36. Tabes dorsalis. (Tabes dorsalis.)
37. Multiple sclerosis. (Multiple sclerosis.)
38. Hemiplegia and apoplexy. (Apoplexy. Hemiplegia, C.)
39. Facial paralysis. (Facial paralysis.)
40. Paraplegia. (Paraplegia.)
41. Monoplegia. (Monoplegia.)
42. Ocular muscle, paralysis of. (Paralysis of ocular muscle.)
43. Nerve, paralysis of. (Paralysis of nerve, L.)
44. Muscle, paralysis of. (Paralysis of muscle, L.)
45. Paralysis, location and cause not given. (Paralysis, location not given.)
46. Epilepsy. (Epilepsy.)
47. Jacksonian epilepsy. (Jacksonian epilepsy.)
48. Neurasthenia. (Neurasthenia. Neurasthenia gastrica.)
49. Enuresis. (Enuresis, nocturnal.)
50. Neurosis. (Neurosis, C. V.)
51. Neuro-circulatory asthenia. (Neuro-circulatory asthenia.)
52. Chorea. (Chorea.)
- 52A. Huntington's chorea. (Huntington's chorea.)
53. Hysteria. (Amblyopia, hysterical. Hysteria. Hysterical, joint, L. Phantom tumor.)
54. Neuritis. (Neuritis, L. C. V., diphtheretic. Neuritis, L. C. V., multiple, alcoholic. Neuritis, L. C. V., multiple, nonalcoholic. Neuritis, L. C. V., unclassified. Paralysis, diphtheretic. Sciatica.)
55. Speech, defective. (Stuttering. Speech, defective.)
56. Migraine. (Migraine.)
57. Tics. (Tics.)
58. Deaf and dumb. (Deaf and dumb.)
59. Mute. (Mute.)
60. Deaf. (Deaf.)
61. Spine, deformity or disease of, details not given. (Deformity or disease of the spine.)
62. Spinal cord, other disease of. (Ataxia, hereditary. Atrophy, progressive, muscular. Bulbar palsy. Bulbar syndrome. Combined sclerosis. Lateral sclerosis. Myelitis, L. C. V. Paralysis agitans. Poliomyelitis, anterior, chronic. Syringomyelia. Tumor, spinal cord.)
63. Nervous system, other disease of. (Angiospastic edema. Aphakia. Aphasia. Athetosis. Atony of, L. C. Encephalitis. Caisson disease. Edema angioneuroticum. Hernia cerebri. Hydrocephalus, acquired. Impotence. Ab-



secess of brain. Leptomeningitis, L. C. V. Meningitis, other than epidemic or tuberculous. Shell shock. Neuralgia; specify nerve. Onanism. Other diseases of the nervous system. Pachymeningitis, cerebral, suppurative. Pachymeningitis, cervicalis. Pachymeningitis, hemorrhagic, internal. Pachymeningitis, spinal, suppurative. Paramyoclonus multiplex. Satyriasis. Tumor, brain; specify location. Vagotonia.)

## VI. MENTAL DISEASES.

64. General paralysis of the insane. (General paralysis of the insane.)
65. Constitutional psychopathic states. (Criminalism. Emotional instability. Inadequate personality. Paranoid personality. Pathological liar. Sexual psychopathy. Unqualified.)
66. Mental deficiency. (Border-line condition. Imbecile. Moron. Unclassified.)
67. Malinger. (Malingering.)
68. Dementia praecox. (Hebephrenic type. Katatonic type. Paranoid type. Simple type. Unqualified.)
69. Psychasthenia. (Psychasthenia.)
70. Psychoneuroses. (Psychoneuroses.)
71. Psychosis, alcoholic. (Acute hallucinosis. Chronic paranoid type. Delirium tremens. Korsakoff's psychosis. Other types, acute or chronic. Pathological intoxication.)
72. Psychosis, manic depression. (Manic depressive.)
73. Psychoses, other. (Involution melancholia. Nostalgia. Paranoia and paranoiac conditions. Psychosis, epileptic. Psychosis, due to drugs and other exogenous toxins, *a.* Morphine, cocaine, bromides, chloral, etc., alone or combined; to be specified. Psychosis, senile. Psychosis, traumatic. Psychosis, undiagnosed. Psychosis, with brain tumor. Psychosis, with cerebral arteriosclerosis. Psychosis, with cerebral syphilis. Psychosis, with constitutional psychopactic inferiority. Psychosis, with mental deficiency. Psychosis, with other brain or nervous diseases; specify when possible. Psychosis, with other somatic diseases; specify disease. Psychosis, with pellagra. Psychosis, unclassified.)

## VII. EYE, DISEASES OF.

74. Astigmatism. (Astigmatism.)
75. Hyperopia. (Hyperopia.)
76. Myopia. (Myopia.)
77. Defective vision, cause not stated. (Defective vision, cause not stated.)
78. Strabismus. (Strabismus.)
79. Leucoma. (Leucoma. Leucoma adherens.)
80. Cataract. (Cataract.)
81. Trachoma. (Conjunctivitis, granular, trachoma.)
82. Conjunctivitis, other. (Conjunctivitis, catarrhal. Conjunctivitis, chemical. Conjunctivitis, follicular. Conjunctivitis, phlyctenular. Conjunctivitis, purulent. Conjunctivitis, traumatic. Conjunctivitis, vernal. Hyperemia of conjunctiva.)
83. Pterygium. (Pterygium.)
84. Amblyopia. (Amblyopia, exanopsia. Amblyopia, nocturnal. Amblyopia, toxic. Amblyopia, unclassified.)
85. Amaurosis. (Amaurosis.)
86. Choroiditis. (Choroidal tumor. Choroiditis, suppurative. Choroiditis, unclassified.)
87. Keratitis. (Keratitis, herpetic. Keratitis, neuropathic. Keratitis, non-ulcerative. Keratitis, parenchymatous. Keratitis, phlyctenular. Keratitis, ulcerative. Keratitis, unclassified.)
88. Retinitis. (Neuroretinitis. Retinitis, albuminuric. Retinitis, diabetic. Retinitis, syphilitic. Retinitis, unclassified. Retinitis, acute.)
89. Nystagmus. (Nystagmus.)
90. Glaucoma. (Glaucoma. Glaucoma, secondary.)
91. Eyelid, diseases of. (Ankyloblepharon. Blepharitis. Blepharospasm. Ectropion. Entropion. Hordeolum. Ptosis. Symblepharon. Xanthelasma, eyelids.)
92. Color blindness. (Color blindness.)
93. Eye, enucleation of. (Eye, enucleation of.)
94. Blindness in one eye. (Blind in one eye.)

95. Blindness in both eyes. (Blind in both eyes.)  
 96. Ocular hemorrhage. (Hemorrhage into retina. Hemorrhage into vitreous. Hemorrhage under conjunctiva, nontraumatic.)  
 97. Opacity of the cornea, cause not stated. (Opacity of cornea, cause not stated.)  
 98. Eye, other diseases of. (Chalazion. Choked disk. Conical cornea. Cylitis. Dacryoadenitis. Dacryocystitis. Detachment of choroid, L. Detachment of retina. Empyema of orbit. Epiphora. Exophthalmos. Eye strain. Hemianopsia. Hypopyon. Iridocyclitis. Iritis. Keratoiritis. Keratomalacia. Lacrimal obstruction. Lagophthalmos. Optic neuritis. Obstruction of retinal arteries. Opacity of vitreous. Ophthalmoplegia externa. Ophthalmoplegia interna. Ophthalmoplegia, total. Optic atrophy. Other diseases of the eye. Panophthalmitis. Presbyopia. Retrobulbar neuritis. Rupture of choroid. Rupture of globe. Rupture of retina. Scleritis. Snow blindness. Staphylocoma of cornea. Ophthalmitis sympathetic. Synechia. Uveitis.)

## VIII. EAR, DISEASES OF.

99. Otitis media. (Otitis media.)  
 100. Perforated ear drum. (Perforated ear drum.)  
 101. Otitis, external. (Circumscribed, furuncle. Diffuse, acute. Diffuse, nonparasitic. Diffuse, parasitic.)  
 102. Defective hearing. (Defective hearing, cause not stated.)  
 103. Ear, other diseases of. (Eustachian tube, catarrhal inflammation of. Oto-sclerosis. Impacted cerumen. Mastoiditis. Meniere's disease. Othematoma. Other diseases of the ear.)

## IX. NOSE, DISEASES OF.

104. Adenoids. (Adenoids.)  
 105. Deviation of the nasal septum. (Deviation of the nasal septum. Septum of nose, deflections and spurs.)  
 106. Nose, external deformity of. (Nose, external deformity of.)  
 107. Turbinate, hypertrophy of. (Turbinate hypertrophy.)  
 108. Sinusitis. (Sinus, empyema, L. Sinusitis, ethmoidal. Sinusitis, frontal. Sinusitis, maxillary. Sinusitis, sphenoid. Pansinusitis.)  
 109. Polypus, nasal. (Polypus, nasal.)  
 110. Perforated nasal septum. (Perforated nasal septum.)  
 111. Ozena. (Ozena.)  
 112. Rhinitis. (Rhinitis, acute. Rhinitis, atrophic. Rhinitis, croupous. Rhinitis, hypertrophic.)  
 113. Nasal fossæ, other diseases of. (Epistaxis. Nasopharyngitis, catarrhal. Other diseases of nasal fossæ. Rhinoscleroma. Vasomotor, catarrh.)

## X. THROAT, DISEASE OF.

114. Larynx, disease of. (Laryngitis, V. Laryngitis, phlegmanous acute. Larynx, edema of. Other diseases of the larynx.)  
 115A. Tonsillitis, hypertrophic. (Tonsillitis, hypertrophic.)  
 115B. Tonsils, focal infection from. (Tonsils, focal infection from.)  
 115C. Tonsils, other diseases. (Abscess, peritonsillar. Tonsillitis, chronic. Tonsillitis, follicular. Tonsillitis, parenchymatous suppurative, of "quinsy.")  
 116. Pharynx, diseases of. (Abscess, retropharyngeal. Uvulitis. Epiglottiditis. Ludwig's angina. Other diseases of the pharynx. Pharyngitis. Pharynx, phlegmonous infection, acute. Vincent's angina.)

## XI. CIRCULATORY SYSTEM, DISEASES OF.

117. Pericarditis. (Pericarditis, acute fibrinous. Pericarditis, adhesive. Pericarditis, purulent. Pericarditis, with effusion. Pneumopericardium.)  
 118. Endocarditis. (Endocarditis, acute; give primary disease. Endocarditis, chronic. Endocarditis, septic; give organisms found.)  
 119. Valvular diseases of the heart.  
 120. Aortic insufficiency. (Valvular heart disease, aortic insufficiency.)  
 121. Aortic stenosis. (Valvular heart disease, aortic stenosis.)  
 122. Mitral insufficiency. (Valvular heart disease, mitral insufficiency.)  
 123. Mitral stenosis. (Valvular heart disease, mitral stenosis.)

124. Combined lesions, aortic and mitral. (Valvular heart disease, combined lesions, aortic and mitral.)
125. Pulmonic lesions. (Valvular heart disease, pulmonic lesions.)
126. Tricuspid lesions. (Valvular heart disease, tricuspid lesions.)
127. Valvular lesions, unclassified. (Valvular heart disease, unclassified.)
128. Cardiac hypertrophy. (Cardiac hypertrophy. Cardiac hypertrophy and dilatation.)
129. Cardiac dilatation. (Cardiac dilatation.)
130. Myocarditis. (Myocarditis, V.)
131. Myocardial insufficiency. (Myocardial insufficiency.)
132. Aneurisms. (Aneurism, arteriovenous. Aneurism, cirroid. Aneurism. location given, thoracic, abdominal, extremities. Aneurism, varicose. Aneurismal varix.)
133. Arteriosclerosis and hypertension. (Arterial hypertension. Arteriosclerosis, general, or location given.)
134. Aortitis. (Aortitis.)
135. Hemorrhoids. (Hemorrhoids, V.)
136. Varicocele. (Varicocele.)
137. Varicose veins. (Varicose ulcer. Varicose veins.)
138. Phlebitis. (Phlebitis, L. C. V.)
139. Lymphatic system, diseases of. (Fistula of thoracic duct. Lymphadenitis, L. C. V. Lymphangiectasis. Lymphangitis, L. C. V. Other diseases of the lymphatic system. Status lymphaticus.)
140. Cardiac arrhythmias. (Auricular fibrillation-cardiac arrhythmia. Auricular flutter, cardiac arrhythmia. Cardiac arrhythmia, extra systole. Cardiac arrhythmia, sinus arrhythmia. Cardiac arrhythmia, others.)
141. Cardiac murmurs, not organic. (Accidental pulmonic systolic. Cardio-functional apex systolic. Cardio-respiratory. Other accidental.)
142. Cardiac disorders, functional. (Cardiac disorders, functional. Cardiac palpitation.)
143. Bradycardia. (Bradycardia.)
144. Heart-block. (Heart block.)
145. Tachycardia. (Tachycardia, paroxysmal. Tachycardia, simple.)
146. Circulatory system, other disease of. (Aneurism of heart. Angina pectoris. Dilatation of aortic arch. Embolism, L. Embolism, fat, L. Hemopericardium. Hemorrhage, L. Infarct, L. C. Infarction of lung. Other diseases of the circulatory system. Rupture of aorta. Rupture of heart. Telangiectasis. Thrombosis, L.)

## XII. RESPIRATORY SYSTEM, DISEASES OF.

147. Bronchitis. (Bronchiectasis. Bronchitis, V.)
148. Pleurisy. (Hemothorax. Pleurisy, fibrinous. Pleurisy, serofibrinous. Pleurisy, suppurative. Pleuritic adhesions. Pneumothorax. Pyopneumothorax.)
149. Asthma. (Asthma.)
150. Hay fever. (Hay fever. Rose cold.)
151. Emphysema. (Emphysema.)
152. Respiratory system, other diseases of. (Hemoptysis. Streptococcal pneumonia. Pneumonia, interstitial. Pneumonia, lobar. Respiratory irregularity. Broncho-pneumonia. Pneumonia, unclassified. Gangrene of lungs. Abscess of lungs.)

## XIII. DIGESTIVE SYSTEM, DISEASES OF.

153. Defective and deficient teeth. (Defective or deficient teeth.)
154. Dental caries. (Dental caries.)
155. Pyorrhea alveolaris. (Pyorrhoea, alveolaris.)
156. Mouth and annexa, other disease of. (Abscess, alveolar. Abscess, periapical, focal infection from. Cheilitis glandularis. Gingivitis. Glossitis. Leucoplakia. Lingua geographica. Lingual tonsil, hypertrophy of. Other diseases of mouth and annexa. Sialadenitis. Stomatitis, aphthous. Stomatitis, catarrhal. Stomatitis, ulcerative. Ulcer of mouth.)
157. Esophagus, disease of. (Esophagus, diverticula of. Esophagus, spasm of. Esophagus, stricture of, from benign tumors. Other diseases of the esophagus.)
158. Ulcer of stomach. (Ulcer, duodenal or jejunal; state when hyperchlorhydria or hypochlorhydria, hemorrhage or stenosis. Ulcer of stomach. Ulcer, peptic of, L.)



159. Stomach, other diseases of. (Achyilia, gastric. Gastritis, C. V. Gastroenteroptosis. Gastropptosis. Gastro-succorrrhea-hypersecretion, continuous. Gastro-succorrrhea-hypersecretion-intermittent. Hematemesis. Hyperchlorhydria. Hypochlorhydria. Nervous eructations, aerophaghy. Nervous vomiting. Perigastritis. Dilatation gastric, acute. Pyloric insufficiency. Pylorospasm. Rumination. Stomach, acute dilatation of. Stomach, arteriosclerosis of. Stomach, atony of, motor insufficiency, first degree. Stomach, dilatation of. Stomach, dilatation of, motor insufficiency, second degree. Stomach, hour-glass contraction of. Stomach, stenosis of. Thoracico-gastric fistula.)

160. Diarrhea and enteritis. (Colitis, C. V. Diarrhea, cause not determined. or when secondary diagnosis. Diarrhea, fermentative. Diarrhea, nervous. Enteritis. Enteritis, membranica-mucous colitis. Enterocolitis, C. V. Intestinal indigestion. Intestinal toxemia, fermentation. Sigmoiditis.)

161. Ankylostomiasis (hookworm). (Ankylostomiasis, hookworm uncinariasis.)

162. Intestinal parasites. (Ascaris lumbricoides. Cercomonas hominis. Cestoda infection, tapeworm. Cysticercus, L. Diarrhea, flagellate. Lambliia intestinalis. Nematoda, other infection. Other diseases of intestinal parasitic origin. Oxyuris vermicularis. Paragonimiasis. Schistosomiasis, intestinal. Strongyloides, intestinal. Strongylus, Gibsoni. Tematoda, infection. Trichomonas intestinalis.)

163. Appendicitis. (Appendicitis.)

164. Hernia. (Hernia, L. V. Hernia, strangulated, L.)

165. Inguinal rings, enlargement of. (Inguinal rings, enlarged.)

166. Intestinal obstruction. (Ileus. Intestinal obstruction, unqualified. Intestinal obstruction, from internal causes, i. e., stricture (ulcerations), gallstones, enteroliths, foreign bodies, fecal masses. Intestinal obstruction, from external causes, i. e., angulations, kinks, adhesions, volvulus, intussusception. Intestinal obstruction, from spastic or paralytic causes (after injuries, operation, appendicitis, peritonitis).)

167. Fistula in ano. (Fistula in ano.)

168. Fistula, fecal. (Fistula, fecal.)

169. Intestines, other diseases of. (Abscess, periproctic. Abscess, retrocecal Constipation, atonic. Constipation, cause not determined, or when secondary diagnosis. Constipation, spastic. Diverticulitis. Fissure, anal. Other diseases of anus. Proctitis. Rectum, prolapse of, complete. Rectum, prolapse of, incomplete.)

170. Cirrhosis of the liver. (Liver, atrophic cirrhosis of. Liver, biliary cirrhosis of. Liver, hypertrophic cirrhosis of.)

171. Liver, gall bladder and gall ducts, other diseases of. (Cholangitis, V. Cholelithiasis. Cholecystitis, V. Echinococcus. Fistula, biliary. Jaundice, acute infectious. Liver, active hyperemia. Liver, passive hyperemia. Malignant edema. Other diseases of the liver. Schistosomiasis, biliary (Japonica).)

172. Peritoneal adhesions. (Peritoneal adhesions. Peritoneal band from ——— to ———. Stomach, adhesions of.)

173. Visceroptosis. (Visceroptosis.)

174. Digestive system, other disease of. (Abscess, subphrenic, C. Dilatation of the colon. Other diseases of digestive. Pancreatitis. Peritonitis, acute diffuse. Peritonitis, acute local. Peritonitis, chronic. Thoracico-abdominal fistula.)

#### GENITOURINARY.

175. Nephritis. (Nephritis, acute. Nephritis, chronic interstitial. Nephritis, chronic parenchymatous. Nephritis, disseminated, suppurative. Nephritis, suppurative. Uremia.)

176. Nephroptosis. (Nephroptosis.)

177. Kidneys and annexa, other disease of. (Abscess, perinephritic. Albuminuria. Cystic kidney. Hematuria. Hemoglobinuric fever. Hydronephrosis. Other diseases of the kidneys. Perinephritis. Prolapse of ureter. Pyelitis. Pyelonephritis. Pyonephrosis. Ureteral colic. Ureteritis.)

178. Nephrolithiasis. (Anuria calculus. Calculus, L. Nephrolithiasis.)

179. Bladder, disease of. (Abscess, perivesical. Cystitis, C. V. Cystocele. Incontinence of urine. Other diseases of the bladder. Pericystitis. Retention of urine. Schistosomiasis, urinary.)

180. Urinary fistula. (Extravasation of urine. Fistula, rectovesical. Fistula, retroureteral. Fistula, urinary.)

181. Urethra, disease of. (Atresia of urethra. Stricture, L. C. Urethritis, acute, nonvenereal. Urethritis, chronic, nonvenereal.)  
 182. Prostate, diseases of. (Hypertrophy of prostate. Prostatitis. Prostatitis. Prostatorrhoea.)  
 183. Hydrocele. (Hydrocele.)  
 184. Genitourinary system, other disease of, nonvenereal. (Balanitis. Condyloma acuminatum, warts, external genital organs. Cowperitis, Epididymitis, C. V. Epididymo-orchitis, C. V. Funiculitis. Orchitis. Other diseases of, nonvenereal, male genital organs. Paraphimosis. Periorchitis. Priapism. Seminal vesiculitis. Spermatocystitis. Spermatorrhoea. Tunica vaginalis hematocoele of.)

## XV. SKIN AND CELLULAR TISSUE, DISEASE OF.

185. Cellulitis. (Cellulitis, L. C. V.)  
 186. Trichophytosis. (Trichophytosis, barbae. Trichophytosis, capitis. Trichophytosis, corporis.)  
 187. Nails, defect and disease of. (Atrophia senilis. Dystrophia unguis. Ingrowing nail, L. Leuconychia. Onychauxis. Onchia. Paronychia.)  
 188. Ectoparasites. (Acarodermatitis, grain itch. Pediculosis capitis. Pediculosis corporis. Pediculosis pubis. Scabies.)  
 189. Bromidrosis. (Bromidrosis.)  
 190. Raynaud's disease. (Raynaud's disease.)  
 191. Keloid. (Keloid.)  
 192. Large scar of face. (Large scar of face.)  
 193. Abdominal scar. (Abdominal scar.)  
 194. Painful cicatrices. (Cicatrices of —, painful, L. C.)  
 195. Cicatricial contracture. (Cicatricial contracture, L. C.)  
 196. Cicatricial deformities. (Cicatricial deformity, L. C.)  
 197. Skin and cellular tissue, other diseases of. (Abscess, all others, L. C. Acanthosis nigricans. Acne varioliformis. Acne vulgaris. Adhesions, L. Alopecia. Alopecia areata. Angiokeratoma. Anidrosis. Atrophia maculata et striata. Atrophia senilis. Atrophoderma diffusum. Callositas. Canities (grayness of the hair). Carbuncle, L. Chilblain. Chromidrosis. Clavus, corn. Comedo, blackheads. Cornu, cutaneous horns. Dermatitis exfoliativa. Dermatitis factitia, eruptions artificially produced. Dermatitis gangrenosa. Dermatitis herpetiformis. Dermatitis medicamentosa, drug eruptions. Dermatitis papillaris capillitis, acneloid. Ecthyma. Ectopy. Eczema. Eczema seborrheicum. Epidermolysis bullosa. Erysipeloid. Erythema induratum, Bazin. Erythema multiforme. Erythema nodosum. Erythema scarlatiniforme. Erythema toxicum. Favus. Folliculitis. Folliculitis decalvans. Furuncle, L. Furunculosis. Furunculosis acute, vestibule of nose. Gangrene, L. Herpes simplex. Herpes zoster. Herpes zoster, ophthalmicus. Hildroa vacciniiforme. Hildrosystoma. Hyperemia of conjunctiva. Ichthyosis. Impetigo contagiosa. Impetigo herpetiformis. Intertrigo. Keratoderma. Keratosis follicularis, Darier. Keratosis palmaris et plantaris. Keratosis pilaris. Keratosis senilis. Lichen planus. Lichen ruber. Lichen scrofulosus. Lichen simplex, Vidal. Malignant edema. Melanoderma. Miliaria crystallina sudamen. Miliaria rubra, prickly heat. Miliolum. Molluscum. Morphoea. Nævus fibrosus. Nævus linearis. Nævus papillaris. Nævus pigmentosus. Nævus pilosus. Nævus vascularis. Other diseases of the skin. Pemphigus. Dermatitis, unqualified. Phlegmona diffusa. Pityriasis, Rosen. Pityriasis rugra, Hebra. Pityriasis simplex. Pityriasis versicolor, chromophytosis. Pompholyx, dysidrosis. Prurigo. Pruritis. Pruritus ani. Psoriasis. Rosacea. Seborrhoea. Syccosis vulgaris. Trichorrhæxis nodosa. Ulcer, L. C. V. Ulcer of, decubital, L. Ulcer of foot, perforated, L. Ulcer, perforated. Urticaria. Urticaria pigmentosa. Verruca, wart. Verruca seborrhoeica. Zoster.)

## XIV. BONES AND ORGANS OF LOCOMOTION, DISEASES OF.

198. Fracture, malunion of, upper extremity. (Malunion fracture, upper extremity.)  
 199. Fracture, malunion of, lower extremity. (Malunion fracture, lower extremity.)  
 200. Fracture, malunion of, other than of extremities. (Malunion of fracture, other than the extremity.)

201. (Blank.)
202. Fracture, nonunion of, upper extremity. (Nonunion fracture, upper extremity.)
203. Fracture, nonunion of, lower extremity. (Nonunion fracture, lower extremity.)
204. Lower extremity, shortening of. (Shortening of lower extremity.)
205. Upper extremity, loss of whole or part of. (Loss of part or whole of upper extremity.)
206. Lower extremity, loss of whole or part of. (Loss of part or whole of lower extremity.)
207. Ankylosis, bony, of joint. (Ankylosis, bony, of joint, L. C.)
208. Ankylosis, fibrous, of joint. (Ankylosis, fibrous, of joint, L. C.)
209. Joint, contracture of. (Contracture of joint, L. C.)
210. Bursitis. (Bursitis, L. C. V.)
211. Tenosynovitis. (Tenosynovitis, fibrinous, of muscle. Tenosynovitis, se-  
rous, of muscle. Tenosynovitis, suppurative, of muscle.)
212. Joint, relaxed ligaments of. (Relaxed ligaments of joint.)
213. Joint, resection of. (Joint, resection of.)
214. Chronic dislocation, other than hand. (Chronic dislocation, other than  
hand.)
215. Muscle, fascia, tendon, sheath, contracture of. (Contracture of muscle,  
fascia, tendon, or sheath, L. C. V.)
216. Hammertoe. (Hammer toe.)
217. Hallux valgus. (Hallux valgus.)
218. Plantar fascia, contracture of. (Contraction of plantar fascia.)
219. Palmar fascia, contracture of. (Dupuytren's contraction of palmar  
fascia.)
220. Pes cavus. (Pes cavus.)
221. Pes planus. (Pes planus, flat foot.)
222. Pronated foot. (Pronated foot.)
223. Foot, loss of part of. (Loss of part of the foot.)
224. Foot, deformity of (cause or type not specified). (Deformities of the  
foot, cause or type not specified.)
225. Ganglion. (Ganglion, L.)
226. Skull, depressed fracture of. (Depressed fracture of skull.)
227. Hand, deformities of (result of old injury or infection). (Deformities  
of hand, result of old injury or infection.)
228. Fingers, loss of one or more. (Loss of one or more fingers.)
229. Osteitis deformans. (Osteitis deformans.)
230. Recent operation wound. (Recent operation wounds.)
231. Scar of head. (Scar of head.)
232. Hernia of muscle. (Hernia of muscle, L. C.)
233. Exostoses. (Exostoses, L.)
234. Metatarsalgia. (Metatarsalgia.)
235. Myositis. (Myositis.)
236. Talipes. (Talipes.)
237. Deformity of (location not given). (Deformity of, L.)
238. Upper extremity, deformity of. (Deformity of upper extremity.)
239. Lower extremity, deformity of. (Deformity of lower extremity.)
240. Trunk, deformity of. (Deformity of trunk.)
241. Head, deformity of. (Deformity of head.)
242. Chest, deformity of. (Deformity of chest.)
243. Upper extremity, atrophy of muscles of. (Atrophy of muscles of upper  
extremity.)
244. Lower extremity, atrophy of muscles of. (Atrophy of muscles of lower  
extremity.)
245. Osteitis. (Osteitis.)
246. Divided ligament, muscle or tendon. (Divided ligament, muscle, or  
tendon.)
247. Bones and organs of locomotion, other diseases of. (Atrophy of, L. C.  
Calcification of cartilage. Overriding toes. Coxa valga. Coxa vara. Genu  
recurvatum. Genu valgum. Genu varum. Hallux varus. Loose bodies in  
— joint, L. V. Lumbago. Mallet finger. Myotonia congenita. Necrosis, L. C.  
Osteomyelitis, L. C. V. Other diseases of locomotor organs. Paralysis, muscle,  
ischemic. Perichondritis-C. Periostitis, L. Synovitis of, L. C. V. Trigger fin-  
ger. Spondylitis, unqualified. Floating cartilage.)



XVII. *Malformations. Ill-defined diseases.*

- 248. Defective physical development. (Defective physical development.)
- 249. Deficient chest measurement. (Deficient chest measurement.)
- 250. Underweight. (Underweight.)
- 251. Underheight. (Underheight.)
- 252. Malnutrition. (Malnutrition.)
- 253. Anorchism. (Anorchism.)
- 254. Monorchism. (Monorchism.)
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- 257. Gynandrisms. (Gynandrisms.)
- 258. Masochism. (Masochism.)
- 259. Impacted molar. (Impacted molar.)
- 260. Cleft palate. (Cleft palate.)
- 261. Harelip. (Harelip.)
- 262. Spina bifida. (Spina bifida.)
- 263. Albinism. (Albinism.)
- 264. Fistula, other. (Fistula, other, L. Fistula post operative.)
- 265. Bullet or other recent wounds. (Bullet or other recent wound.)
- 266. General unfitness for military service. (General unfitness for military service—cause not specified.)
- 267. Ill-defined diseases. (Edema, L. C. Hypertrophy of, specify. Phimosi, congenital.)
- 268. Diseases not specified. (Other diseases not specified. Under observation, undiagnosed, or unknown.)
- 269. Other malformations or ill-defined diseases. (Ascites-C. Exhaustion, physical, not heat. Febricula, simple continued, and other fevers of undetermined cause. Foreign body in, L. V. Insomnia. Convalescing from diseases or operation which existed prior to service. No disease. Seasickness. Shock. Stenosis, L. C. Old age and results. Infection of, L.)

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EDITOR'S NOTE.—The appendix Tables I to XXXVI, inclusive, giving in detail the information obtained as a result of the physical examination, as well as the figures and plates illustrating the text and tables, are frequently referred to in the text. They are, however, not included in this publication.

The contents of these appendix tables, figures, and plates are shown in brief in the Table of Contents. They will be published later.

## KEY TO PAGE NUMBERS IN INDEX FOR DISEASES OR DEFECTS AND FOR STATES.

To find the discussion of the diseases or defects or of any State under the heading desired, use the number with the letter (for the heading as shown below) following:

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Diseases or defects, comparative incidence by States_____	(B)
Diseases or defects, general discussion in introduction_____	(C)
Diseases or defects, number of_____	(D)
Group C, men classified in, defects of_____	(E)
Group of sections, comparative incidence of defects in (discussion)_____	(F)
Group of sections, comparative incidence of defects in (tables)_____	(G)
Group sections, composition of_____	(H)
Physical examination standards_____	(I)
Physiographic series, comparative incidence of defects in various groups_____	(K)
Rural districts, comparative rates with urban districts_____	(L)
Sections in various States, description of and defects in_____	(M)
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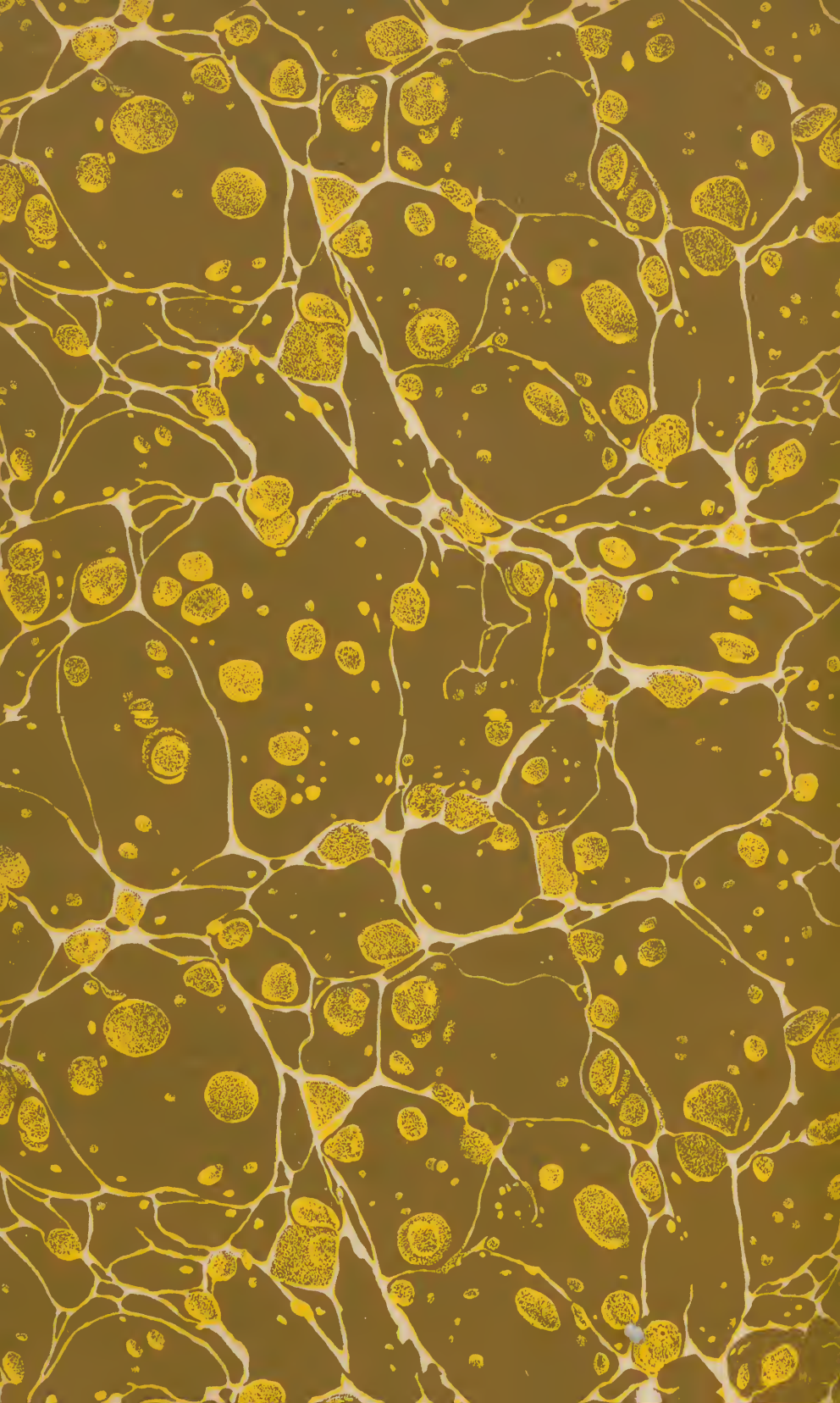


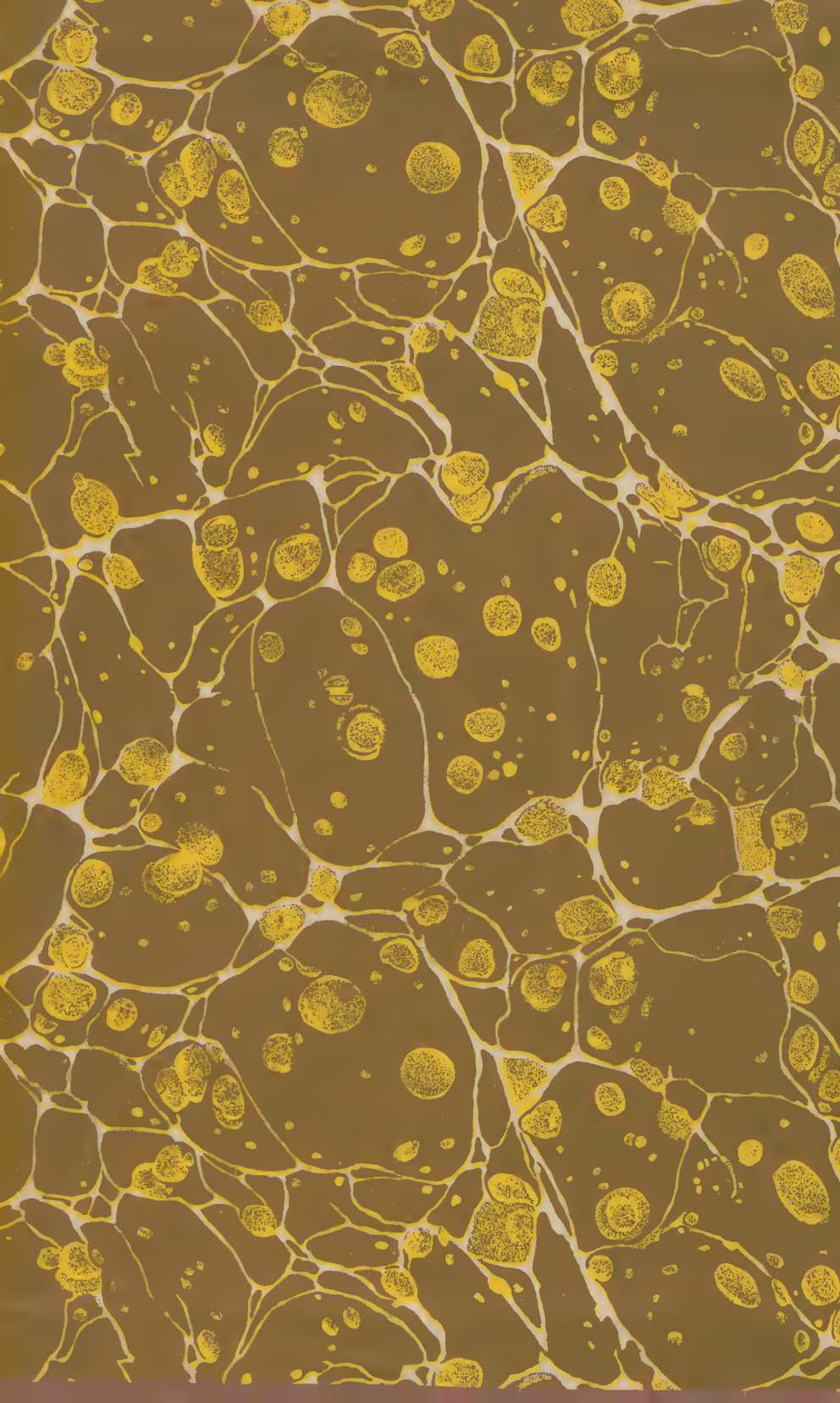














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